The New York State
Conservationist
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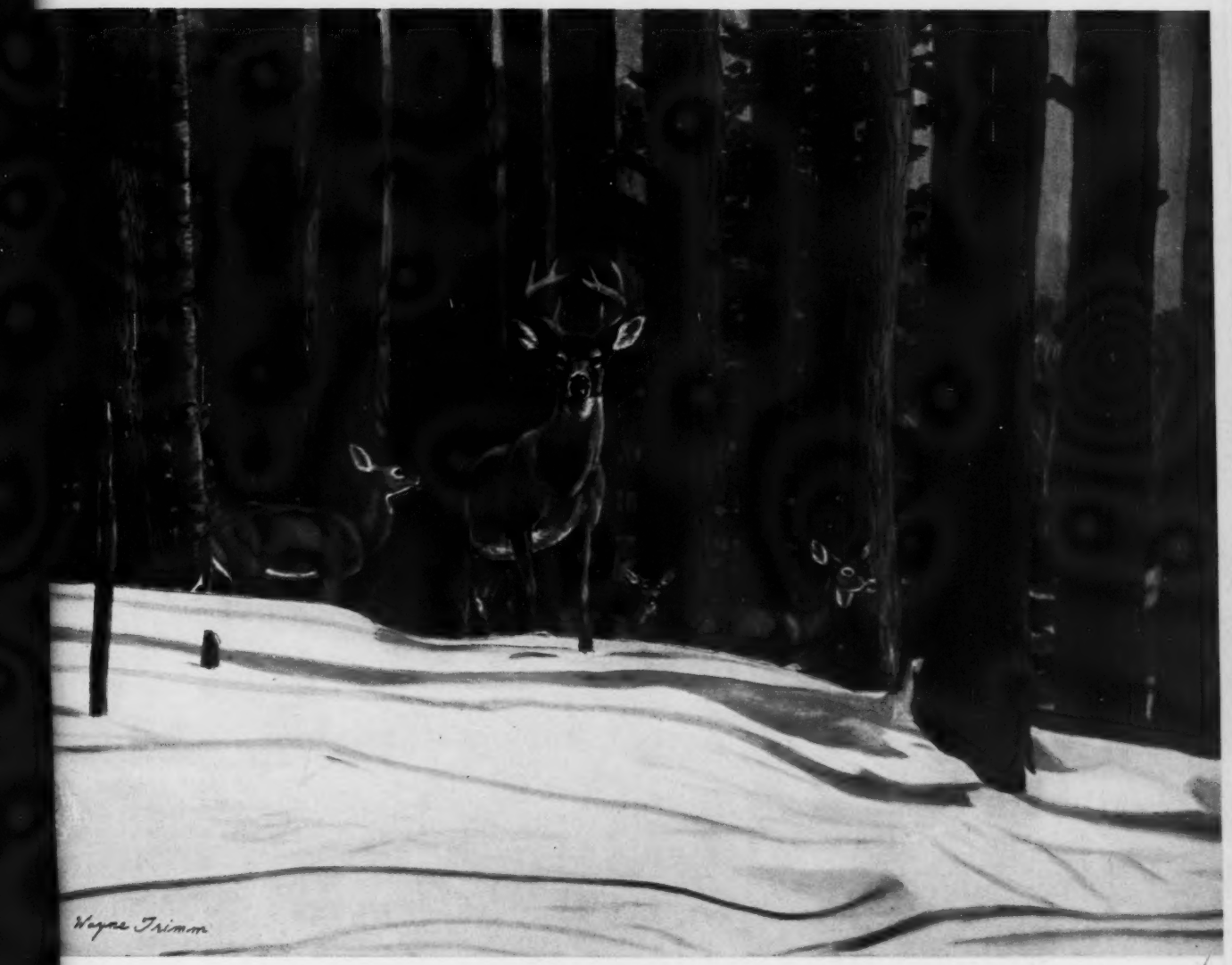

The New Snow

RUBY-CROWNED KINGLET Female
ROUGH LEGGED HAWK
GOSHAWK Adult Male
BLUE JAY
RUBY-CROWNED KINGLET
Male
SNOWY OWL
NORTHERN SHRIKE (Dead Bird)
GOLDEN-CROWNED KINGLET
Male
GOLDEN-CROWNED KINGLET
Female

Pharsalia

For more than two years now there's been thinking—talking—planning—trips of inspection—editorializing—legislation—appropriation of funds and finally, this Fall, up in the hills of Chenango County near Pharsalia, the opening of New York's first out-of-doors Conservation-Correction Camp; a minimum security reformatory; a "prison without walls."

What this means to the State Department of Correction in the rehabilitation of youthful offenders is outlined in this issue of THE CONSERVATIONIST by John T. Slattery, Director, Division of Youth. What it means to the Conservation Department in opportunity to rehabilitate wornout lands and to progress faster in the much needed management of State forests is presented in a companion article by Charles F. Baar, Supervising Forester. But what this opportunity will mean to reformatory youths, successful in passing the rigorous screening for selection as "campmen," is something that only they can weigh. Those of us who, by the grace of God, are on the outside looking in, can never appreciate their feelings fully.

We can, though, make a few guesses at their reactions and, we think, be not too far off. We can guess, for instance, at how this expanse of country, the wooded hills, the clear streams and the wide sweep of sky is going to look to many of these boys from city streets — and the worst streets in the city. We can appreciate a little of how they will feel changing from regulation prison garb into camp clothes; changing from the tight security regime of the walled institution to the greater measure of freedom made possible by the camp organization; changing from the monotony of tasks done only that they may be done again to work that will rebuild the land.

Feeling these things only in part, we have difficulty in holding down our enthusiasm; in remembering that this is just a first step, though a well-planned and a cautious one. On the other hand, this program is working, and working well in California, Wisconsin, Michigan, Illinois and Massachusetts. There's every reason to hope that Pharsalia will be only the beginning here in New York.—Editor

The New York State

Conservationist

DECEMBER-JANUARY, 1956-1957

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The Camp at

FOR CORRECTION

EIGHTEEN hundred feet above sea level, up in the hills of Chenango County, northwest of Norwich, a pioneering penological project has begun at Camp Pharsalia, New York State's first Youth Camp in the Department of Correction. This progressive penological project has the wholehearted endorsement of Governor Averill Harriman, Conservation Commissioner Sharon J. Mauhs, and Correction Comissioner Thomas J. McHugh.

Located on the site of an old C.C.C. (Civilian Conservation Corps) encampment of the 1930's this pioneering project in New York State actually could be called a 1956 version of the C.C.C.—a Correction-Conservation Camp. The 1930 C.C.C. campmen were civilians directed by military authorities to perform reforestation work. The 1956 Correction Conservation Campers (since it is a venture of both Departments) or Pharsalia campmen are made up of youths aged 16 to 21 from New York State correctional institutions, supervised by Department of Correction personnel, and are engaged in the forestation and reforestation of State Conservation lands. The C.C.C. camp of the 1930's on a national scale had a two-fold purpose;

Men and machines at work at Pharsalia

to rescue the civilians of that depression era from idleness, and to conserve and develop the depleted or neglected forest.

The laws of 1955 of New York State created "in the Department of Correction a state reformatory to be known as the Youth Rehabilitation Facility consisting of such conservation work camps as the Commissioner of Correction shall from time to time establish for the care, treatment, education, rehabilitation, security and correction of males who were between the ages of sixteen and twenty-one at the time of the commission of the act for which they were adjudged youthful offenders or convicted of a crime or offense." The philosophy of the Youth Facility is entwined in the twin objectives of these 1956 Conservation-Correction camps; that is the reorientation of the attitudes and habits of selected youthful inmates of correctional institutions toward responsible living, and the conservation and preservation of our State Forest lands. These objectives will be obtained through a work program with the technical assistance of State Conservation personnel under the supervision and guidance of trained, experienced Correctional personnel directing the work of youthful inmates on State Conservation lands.

The first inmates were transferred from Elmira Reformatory on October 2, 1956 to Camp Pharsalia, there to be known as campmen. Plans are under way to construct a second camp in Schuyler County near Monterey, and it is expected that additional camps will be added in the future. The capacity of each camp will be about 50 men. There is an estimated need for 125,000 man-work-days for the next 10 to 15 years in each area.

Three factors are important as primary considerations in the planning of a camp program. The first is the selection of a suitable campsite on State Conservation land in an area where there is sufficient conservation work to require the services of 50 men for a ten- to fifteen-year period. The second factor is the proper selection of youths for camp work. The third factor is the selection of suitable personnel to operate the camp program. Of the three, probably the most important requisite is the selection of suitable personnel. Camp personnel will be working in an open camp situation in a climate totally different from that found in the average correctional institution. Members of the camp staff should, of course, be stable, well balanced people of good judgment, and experienced in the field of delinquency. They should also possess the ability to lead, command respect, induce confidence, and be able to interpret the camp program to others.

Inmate candidates for the camp are volunteers, who are, in many instances, recommended by the Elmira Reception Center after a 60-day study, and again "screened" by the Classification Committee of the Institution of transfer. Final determination is made after personal interview, and case review by the Director of Youth and the Camp Supervisor who recommend to the Commissioner of Correction their transfer to the camp.

The factors considered are the inmate's criminal record, his work record both in the community and in the institution, discipline record, family ties, medical and psychological capacity for work in the camp, and the ability to get along under a minimum of supervision. Those precluded from the camp program are youths who have known escape records, malingerers, dangerous assaultive cases, and those otherwise unsuited by personality for life in a camp-type living program.

Department of Correction personnel are responsible for the care and supervision of the campmen, both in the camp proper and on the Conservation work projects. The planning and technical direction of the Conservation work projects are the responsibility of the State Conservation Department. The work schedule is a full eight hours a day for five days.

The reaction of the campmen to this program has already been extremely significant. It is probably best reflected in the sentiments of one man who wrote home in this vein: "It's hard for me to explain this place to you since there's so much difference from the other place, I don't know where to begin—it's fun to work here, as everything we're doing is for our own benefit—I feel a lot more confortable with these clothes on, as the others were that drab prison gray." The minimum of supervision and surveillance, the atmosphere of the camp itself and productive work, all add up to a remarkable *esprit de corps.*

While the first Department of Correction Youth Work Camp is at present engaged in working with the Lands and Forests Division of the Department of Conservation, it is expected that in the future, the camp program will undertake work projects associated with the Fish and Game Division, Parks Division, Division of Water Power and Control, etc.

—JOHN T. SLATTERY,
Director, Division of Youth,
N. Y. State Dept. of Correction

Pharsalia

FOR CONSERVATION

A view from the camp at Pharsalia; typical of Chenango's wooded hills

THE underlying philosophy of the new Youth Rehabilitation Facility established at Pharsalia, through co-operative effort of the Conservation and Correction departments is well described in the accompanying article by John Slattery, Director, Division of Youth, Department of Correction. In further support of this approach to the youth problem, no one can deny the immense value which communion with Nature has on the mind and soul. In addition to the benefits to the inner man which these young men will receive from their daily contact with Nature, the rugged outdoor life of working in the forests will develop them physically as well. This combination of sound body and mind should be a decisive factor in developing those of our society who went astray into fine upstanding members in our various communities. We wish them well.

The Pharsalia camp is located away from the "roaring traffic boom" and the cold, steel-gray walls of the institutions. It is situated in the center of some 35 to 40 thousand acres of beautifully rolling, wooded lands comprised mostly of coniferous plantations. These were planted in the early 1930's. Today they have reached a size and form that make them a delight for all to see, and a most inspiring place in which to work.

While the Correction Department has been engaged in the multitude of administrative details related to the establishment of the camp, the Conservation Department has been equally busy developing a long range work program to be carried out by the camp inmates. It is emphasized here that all work planned for this camp is essential and necessary for the fulfillment of the State Forest program. No "boon doggling" projects are to be found in this work plan.

The State Forest program is concerned with forestry as a business. As such, it is designed to pay for itself in time and net a profit to the people of the State of New York. It is a big business involving an investment, to date, of more than $15 million on a State-wide basis. In order to safeguard this investment, keep the plantations growing at an optimum rate, develop high quality lumber and maintain the administrative and fire control facilities, certain forest practices and maintenance work is necessary. In addition to these fundamental requirements, the plantations, which are now developing into forests, offer the public large areas for hunting, fishing and other outdoor activities—an increasingly important consideration in these days of rapid population increase and land access restrictions. Thus, multiple benefits are being derived by the public from a program whose original objective was simply to reforest abandoned and idle farm acres.

Because of the suitability of some of the State Forest areas for game management rather than strictly forest management, the Conservation Department's Division of Lands and Forests and the Division of Fish and Game are co-operating to integrate fish and wildlife programs with forest management programs in every instance, where this appears to be in the best interests of the over-all program.

This then is the background necessary to an understanding of the workload being planned for the camp and to the full realization that the many inmate man-days of work which will become available will contribute importantly to the wealth in natural resources owned by the people.

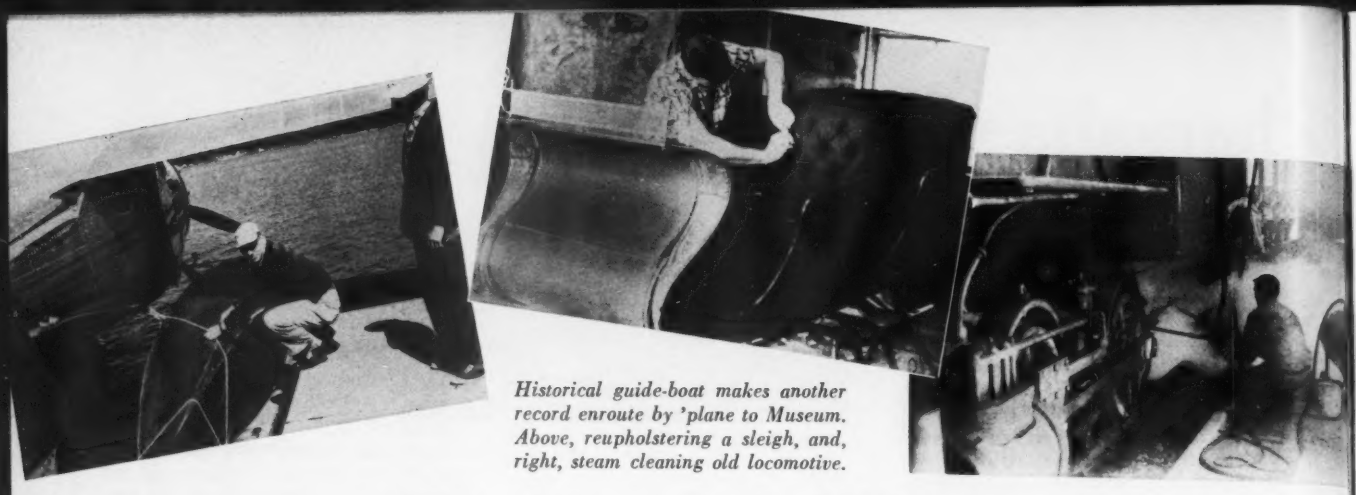
Since the camp is new, the surrounding grounds and buildings must be developed to make the site homelike. This is the first order of business. Once the camp is in shape and "home" to its full complement of young men it is expected that the majority will be released to the Conservation Department's work program. District Forester C. E. Baker, Norwich, in whose district the camp is located, together with his staff, have laid out a conservation work program for this first year. It's recognized, however, that because of delays in camp construction and assignment of the full complement of men to the camp, all of these first year's objectives may not be realized. However, immediate goals are:

Conservation Project	Work Units	Man-Days Required
Plantation pruning	419 acres	1895
Plantation thinning	880 acres	4390
Forest stand improvement	210 acres	1340
Reforestation	120 acres	180
Access trails	30 miles	2540
Water hole maintenance	36 miles	75
Marsh ponds	3 ponds	200
Boundary line fencing	2.5 miles	100
Landscaping	—	400
Snow removal	—	100
Miscellaneous	—	90

In conclusion it can be said that both the people of the State and the youthful offenders stand to gain valuable benefits from this fine, co-operative program. The people will gain directly from the development of their natural resources and the young men from rehabilitation, both mental and physical, designed to make them good citizens, not liabilities of our State.

—C. F. Baar, *Supervising Forester, N. Y. S. Conservation Department*

One of the many old apple orchards needing pruning for production of game food



Historical guide-boat makes another record enroute by 'plane to Museum. Above, reupholstering a sleigh, and, right, steam cleaning old locomotive.

The Adirondack Museum

THE Adirondack Museum, at Blue Mountain Lake, will be opened in the Spring of 1957. Construction of the Museum, which began in the Summer of 1955, was being pushed toward completion this past Summer and early Autumn. In its main and adjacent buildings, the Museum will house a way of life in the history of the North Country. Featured will be the lumbering industry, the manner of living in the days of the early hotels and resorts and developements in Adirondack travel and transportation.

Main structure is a fireproof stone and brick building with slate roof — much larger than at first planned—situated on the site of the old Blue Mountain House. Built in the shape of a cross, this building contains a large exhibition room in its west wing and smaller exhibition room in the east end. Entrance from a porch on the north side—the roof of the porch supported by huge, peeled tree-trunk columns—leads into a hall in which will be a big contour map of the mountains and lakes of the region so that one can orient himself to the area. The south wing of the building contains an office, library, work room, storage room and heating plant. Pantry and storage space are at the east end of the larger exhibition room. A huge fireplace is at the back of the entrance hall.

It is planned to use the exhibition rooms for dioramas, photographs and temporary exhibits. Considerable research has gone into development of the dioramas so that the periods and aspects they depict will be as nearly perfectly recaptured as possible.

The Adirondack Historical Association, sponsor of the Museum, possesses a notable collection of photographs and valuable volumes, pamphlets and manuscripts that will occupy the shelves of the library. The amateur and professional researcher or just plain devotee of Adirondack history and lore will find the work room a convenient haven.

Near the main building still stands, well preserved, one of the oldest log cabins in the Adirondacks, built in 1876 by the late Tyler Merwin as an annex to his hotel. The cabin will house a hunting and trapping exhibit. In an adjoining structure, the Museum staff, headed by Dr. R. Bruce Inverarity, director of the Museum, late this Summer and Fall was busily engaged in cataloging work, dog-tired but happy and increasingly enthusiastic with progress of the whole undertaking.

Nearby buildings will contain other exhibits, prominent among them being the old steam locomotive and passenger car that ran from 1900 to 1929 on the Marion River Carry Railroad, 7 miles from Blue Mountain Lake. In its heyday this was the shortest standard-gauge railroad in the world. The under-sized engine, which had been collecting rust under its forest-enclosed shed, was trucked through Blue Mountain Lake Village and up the hillside to what will be its permanent shrine. Here, it will stand on tracks in a building simulating a station with its ticket office. Those who often decried the abandonment of the old engine near the west end of the Carry will be pleased with its new home and the tremendous amount of work the Museum staff and artisans have done in restoring the engine and its passenger car to as nearly possible their original condition and splendor. Ravages of time, the elements, porcupines and human vandals have been erased. Missing parts have been found or ingenuously made and installed.

The locomotive was the second on the Carry Line; the first was wrecked. A third similar one hauled redwood logs in California. The passenger car was one of three and the only one salvageable. Both engine and car are but one phase to be shown of the transportation means of the old days. Two lake steamers will also be housed, as will guide-boats, canoes, peddler's cart, sleighs, road carts, wagons and probably the most perfectly preserved Concord stagecoach in existence (brought in from Maine, it is a facsimile of those that plied what passed for Adirondack roads in the old days).

Other Adirondackana on view at the present in temporary position, is too much to list here, and more is coming in each day. Co-operation and offerings from those interested in the project has been most gratifying. The Museum staff has practically run its collective legs off investigating offers and rounding up objects of antiquity. A bit of evidence of this was the tracing down of about a hundred fifty leads on where to locate a stagecoach of the kind used in the area. So it has gone with other vehicles, tools, boats, stoves, pictures, hunting devices, a steamer headlamp and whistle, the electric generator out of the old Prospect House, snowshoes, toboggan, canoe—anything and any kind of article which helps explain how North Woods people lived and how and what they did.

The whole layout has its own fire-protection system and this added assurance of safekeeping of valuable exhibits has brought out from almost forgotten storage many more objects of North Country lore than was ever hoped for by the Museum staff. But safe harbor will be afforded — even to additional structures in which to house them.

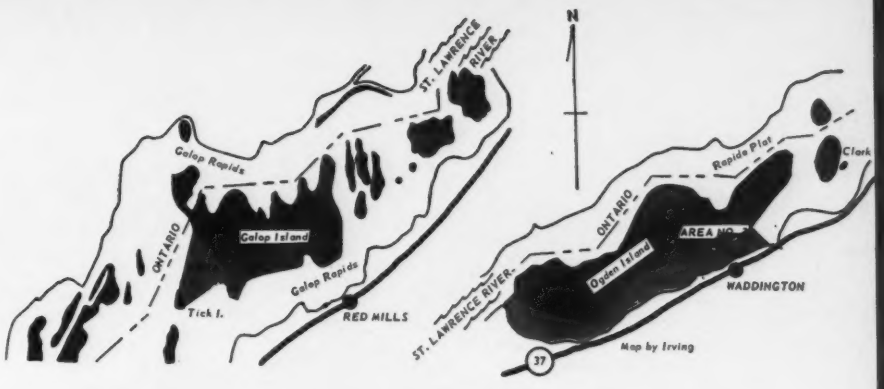
Supporting the Museum project is the unspoken but known desire of those who constitute the Adirondack Historical Association to "do something" for the Adirondacks and its people whom they have come to love. We can think of no finer expression of appreciation because not only is the immediate area but the whole State the beneficiary.

—ROLAND B. MILLER

What's Down There?

Ever wonder, when fishing a lake or a big river, just what kinds and how many fish were "down there?"

Fish Salvage operations by the Conservation Department's Bureau of Fish on the St. Lawrence River—one of our biggest and best—where hydro-electric and seaway construction is in progress, provide a partial answer to that age-old question.—Editor



Three "cut-off" areas of the St. Lawrence netted by fish salvage crews

THROUGH various methods including use of rotenone, draining, tagging and recovery, netting and electric shocker it has been possible to build up a considerable body of knowledge of maintenance or carrying capacities of ponded waters for fish. "Standing populations" in such waters in this latitude (not including small, farm pond type waters) range from about 15 to 500 pounds per acre. The average for such recorded standing populations for natural lakes in latitudes and having climatic conditions similar to those in New York appears to fall somewhere between 50 and 150 pounds per acre.

Records of standing populations for streams are much less numerous, although some records for trout streams are available. New York trout streams range from about 7 to 300 pounds per acre. The average, for streams evaluated falls between 60 and 70 pounds per acre.

For large rivers apparently the only records available are for sloughs and bays—that is, for marginal waters not accurately representative of true river conditions. For that reason some records which have recently become available for sections of the St. Lawrence River, while neither fully accurate nor complete, are considered to be of interest.

Construction work on the St. Lawrence Seaway project has involved cutting off certain areas of the river. Three of these ponded areas have been to a large extent emptied of water—two by pumping and one by draining. To prevent loss of the fish in these areas, Department salvage crews trap-netted as many of the fish there as possible, returning the game fish and most of the bullheads to the open river, stocking the panfish in kids' fishing ponds and other selected inland waters and destroying the undesirable species.

Netting of the three areas described here (see map), was carried on during draw-down and was incomplete in all cases due to limitations of netting and of time. One-inch bar (two-inch mesh) traps were used which allowed escapement of the small fish. Further, some escapement of fish after partial blocking was possible from areas No. 2 and No. 3. At all three ponds, however, relatively small areas of water remained when netting was terminated and operations were continued until daily catches were negligible. The weights recorded must nevertheless be considered minimal.

Poundage of fish taken was estimated on the basis of numbers and estimated average size of the various species taken. These operations were designed to prevent loss of fish in the areas being drained and detailed and accurate weighing of the fish was not possible under the conditions.

We are of the opinion, however, that even under these limitations, the estimated minimum standing populations of fish based upon this work are of some value considering the paucity of information on fish maintenance in large rivers. Details of habitat vary considerably in the three areas with regard to such details as bottom materials, vegetation and depth. Therefore each area is being described briefly along with statistics of the catch from it.

Area No. 1 had a surface area of 74 acres and a volume of 241,250,000 gallons. Bottom materials are mud, clay and sand with rooted vegetation abundant. Maximum depth was about 14 feet.

In this area, 17,250 pounds of fish were taken, or 233 pounds per acre. Here suckers (12,245 pounds) and yellow perch (3,435 pounds) were the abundant species with the remainder being made up of smallmouth bass, northern pike, muskalonge (one fish), bullheads, eels and sunfish. Game fish species comprised a total of 512 pounds.

Area No. 2 had a maximum surface area of 230 acres and a volume of 512,000,000 gallons. Maximum depth, in a few limited areas, was about 30 feet. The bottom is mostly mud with abundant rooted vegetation.

This ponded area was allowed to drain by gravity over a natural rock fill at the foot and later through the rock fill by an outlet created by blasting. Thus some of the fish, especially the smaller ones, escaped downstream. Blocking of area No. 3 was begun soon after and very likely some of these escapees remained in area No. 3 and were netted there. This may in part account for the relatively high poundage of fish netted from area No. 3.

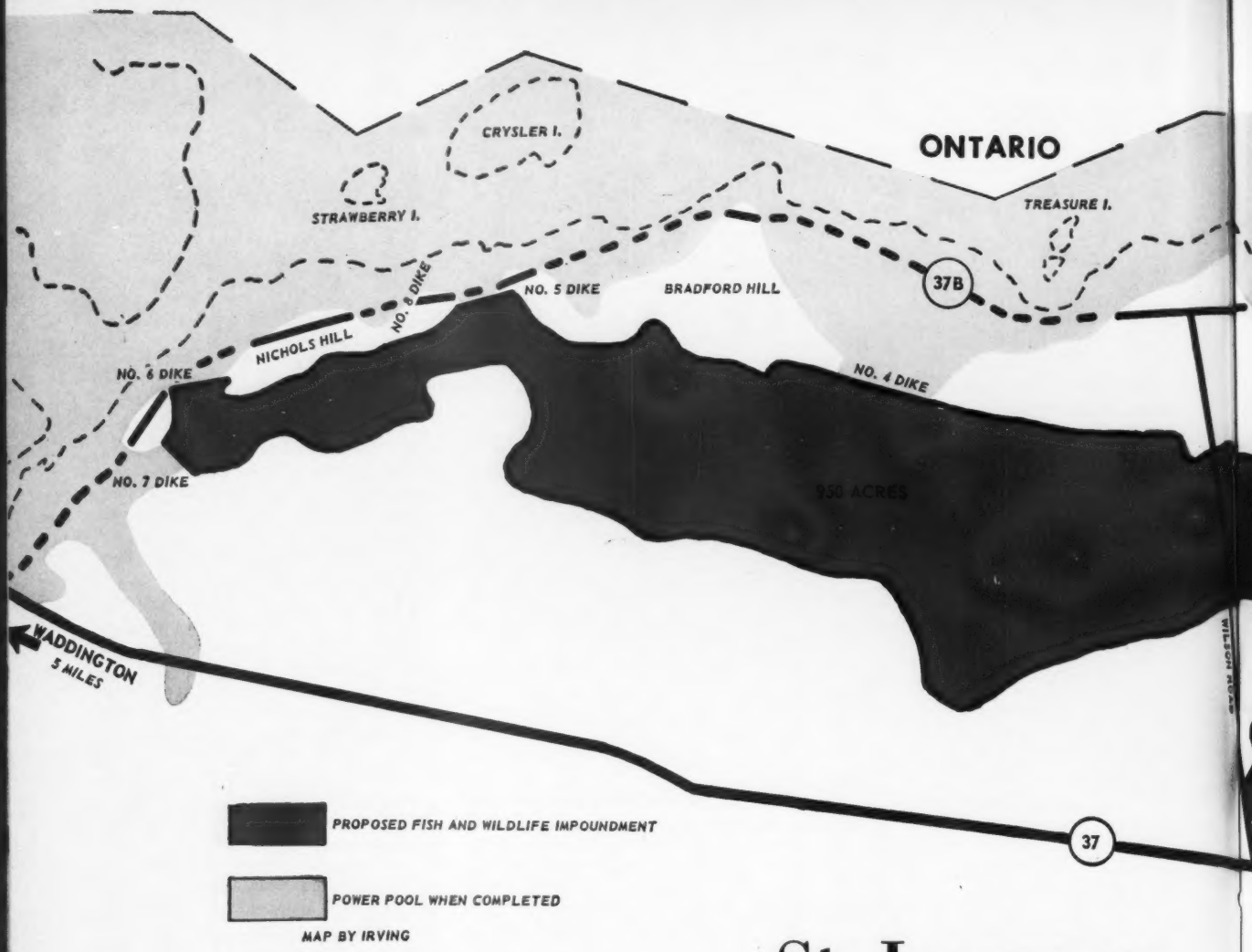
Despite this escapement, an estimated 17,408 pounds of fish were taken in area No. 2 or nearly 76 pounds per surface-acre of water. Bullheads contributed 11,525 pounds to this total, eels 2,280 pounds and suckers 1,560 pounds. Smallmouth bass, largemouth bass, northern pike, pikeperch, muskalonge (one fish), sunfish and rock bass made up the remainder. Game species provided a total of 791 pounds. It is quite possible, of course, that the preponderance of the three bottom-dwelling species here was brought about to some extent by comparatively greater escapement of other species.

Area No. 3, located immediately downstream from area No. 2 had a surface area of 23 acres and a volume of 94,000,000 gallons of water. The bottom is rock, sand and mud with rooted vegetation common. Maximum depth was about 18 feet. This pond is being drawn by pumping.

Here 5,700 pounds of fish were taken or approximately 248 pounds per acre. Of this total 2,312 pounds were suckers and 1,170 pounds were sunfish. The total weight of game fish was 932 pounds, of which northern pike made up 755 pounds.

On the basis of these figures, it would appear that the standing population of fish in the St. Lawrence River compares favorably with those recorded for lakes.

—C. W. GREENE, *Chief, Bureau of Fish;*
A. P. MILLER, *Supvr. of Fish Salvage*



St. Lawrence

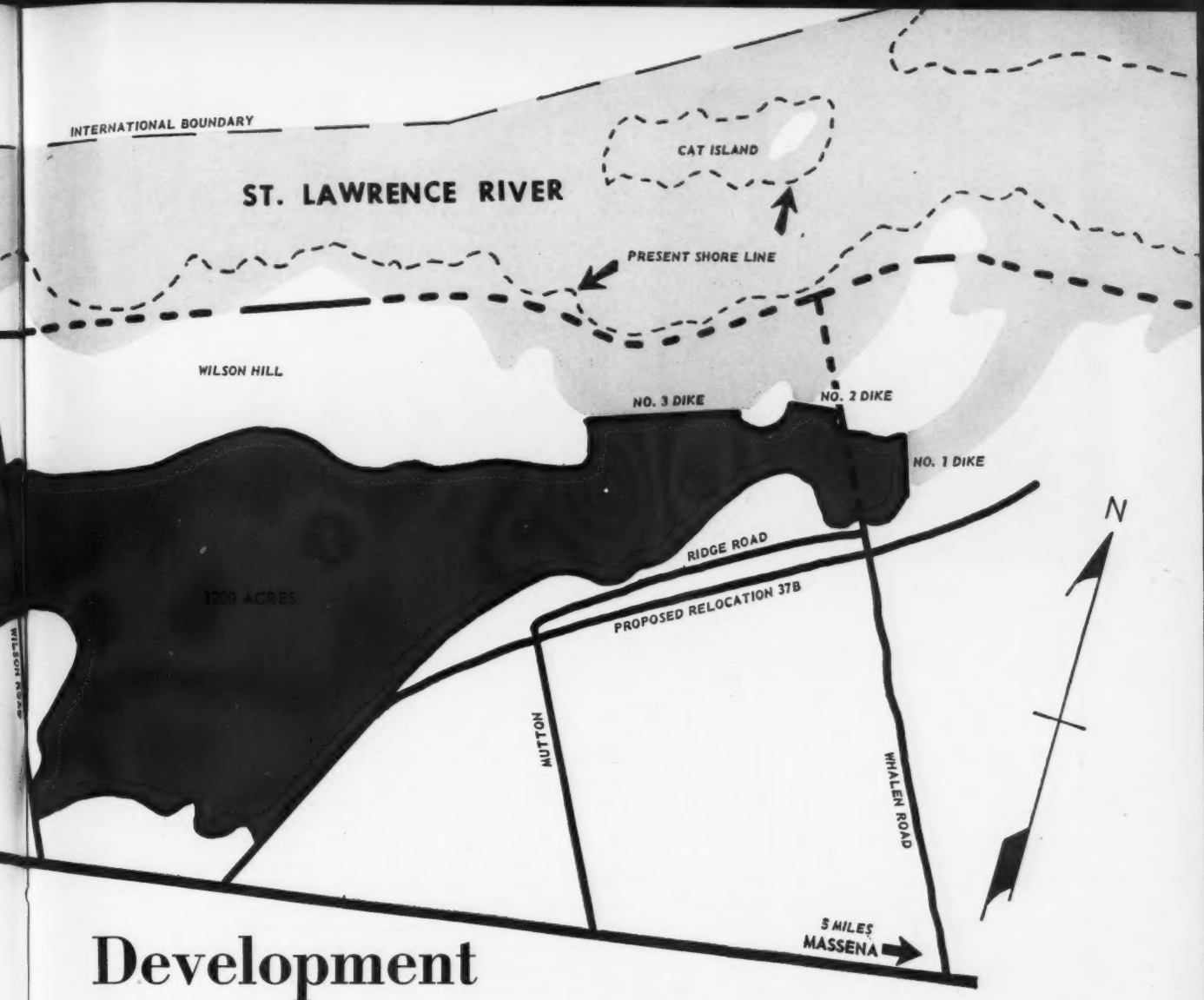
SINCE the inception of the St. Lawrence Power and Seaway projects, the Conservation Department has been taking an active interest in the effects this gigantic undertaking will have on both fish and wildlife resources. Soon after construction work on the St. Lawrence got underway, studies were begun to determine what effect the newly created impoundments would have on fish populations and wildlife habitat, particularly for waterfowl. Biologists have long realized that the St. Lawrence River and the adjacent waters and marshes constitute one of the most important waterfowl regions of the State as well as being an outstanding fishery.

Preliminary studies revealed that in the particular area being flooded by the Barnhart Island Power Dam, there was very little existing marsh habitat which would be flooded, and that the margins of the power pool after development would undoubtedly be more attractive to waterfowl than before flooding.

One aspect of the development, however, caused some concern. This was the fact that, as in most hydroelectric developments, water level fluctuations, both daily and seasonal, would be great enough to cause periodic drainage and drying of shallow marginal areas where the best waterfowl habitat would otherwise be provided. In these shallow areas no aquatic vegetation could be expected to flourish, and they would be exposed as barren mud flats during periods of low water. If, however, a way could be found to stabilize the water levels on such areas, excellent waterfowl habitat could be expected to result.

This was the problem that we took to the Power Authority's Resident Engineer, William Latham. With him, we discussed the possibility of building dikes across shallow bays as a possible means of stabilizing water levels for the benefit of waterfowl habitat. Studies of the power pool's marginal topography revealed an excellent possibility for a series of dikes connecting Wilson Hill (see map) which was slated to become a man-made island, with other high ground and the shoreline. It was determined that a series of seven interconnecting dikes would stabilize water levels in an area of more than 2,000 acres—creating excellent conditions for both fish and waterfowl management.

At the present time the proposal is still in the planning stages, with actual construction schedule to begin during the Summer of 1957. It is proposed that the development be undertaken as a joint project with both the Conservation Department and the Power Authority contributing a share of the cost. The State's share would be financed as a combination fish and wildlife restoration project under the Federal Aid in Fish and Wildlife Restoration funds. These funds provide for 75 per cent cost sharing by the Federal government with money collected from the Fed-



Development

eral excise tax on arms and ammunition for wildlife restoration projects and on fishing tackle for fish restoration projects.

The Power Authority of the State of New York, under the chairmanship of Robert Moses, has taken a very forward-looking attitude toward the aesthetic, recreational and conservation aspects of the St. Lawrence Power Development. The Authority has taken steps to assure that new industrial developments in the area will not cause pollution of the air or water. This is in line with Governor Harriman's and Conservation Commissioner Mauh's declared policy of pollution abatement.

The Authority has provided also for the planting of trees on all spoil banks and other areas where construction leaves scars on the landscape. Recreational plans include a 2,000-acre State park and public boat launching sites. Add these benefits to the proposed 2,150-acre wildlife management area and the fact that the new 30-mile-long lake will be open to public hunting, fishing and boating, and it is clear that this development is unique among big power projects. Never before in a development of this type has so much consideration been given to the non-industrial aspects to make the area attractive and useful for recreational pursuits.

The fact that the wildlife area development is to be undertaken as a joint fish and wildlife Federal aid project is also unique in New York State. Federal aid funds for wildlife restoration first became available in 1939 (Pittman-Robertson Act) but fish restoration funds were not added until 1951 (Dingell-Johnson Act) and during the first few years these funds were relatively meager. Now in its fifth year, Federal aid in fish restoration funds are sizeable enough to make a substantial contribution toward this proposed project which will benefit both fish and waterfowl. Tentative plans call for fish restoration funds to contribute one-quarter of the total cost to the State, while wildlife restoration funds will provide the other three-quarters. The Power Authority will also be making sizeable contributions toward the project. In addition to providing all of the land area needed, the Power Authority has offered to furnish the necessary engineering services for planning and building the dikes, will assume all maintenance of the dikes after completion, and pending final approval of present tentative agreements, will pay 25 per cent of the cost of constructing the dikes. The area will be managed by the Conservation Department after completion to provide the maximum combined fish and wildlife benefits for the region. It is believed that the estimated cost of the State contribution of approximately $100,000 will result in one of the most productive and useful long term undertakings for fish and game in which the Conservation Department has ever participated.

—Ralph B. Colson

Scenes of devastation in the Adirondacks following the Big Blow

Operation Blow-down / A REVIEW AND FINAL SUMMARY

SINCE the great storm of November 25, 1950 is destined to be long remembered by all lovers of the wilderness areas found in New York State, and since this report is to be the final chapter on the activities and accomplishments of the Department in reducing the fire hazard resulting from it, the following is submitted to our readers for the purpose of reviewing and summarizing the history of "Operation Blow-Down." This windstorm, which was preceded by several days of heavy rain, did more damage than anything previously recorded in the history of the Catskill and Adirondack regions. It wrought havoc on both private and publicly-owned timber land and was particularly vicious in the heavy softwood forests (spruce, pine, balsam fir, hemlock) situated on the mountain slopes and which comprised many of the few remaining old growth areas of virgin or near virgin composition. Hardwoods were tipped over as well, but not to the extent suffered by the softwoods.

Reports started to trickle in from the various Department field offices on November 26 and 27, and it soon became apparent that the major damage was concentrated in Lewis, St. Lawrence, Franklin, Essex, Herkimer and Hamilton counties. Damage was also reported in Warren, Washington, Delaware, Ulster and Sullivan counties, but to a lesser degree than that found in the Adirondack counties. These reports, of course, were extremely brief and general in nature but were sufficiently alarming to convey to the Department that an enormous problem had to be met and met quickly. All field office personnel was immediately directed to start detailed air and ground reconnaissance surveys in order to locate fully the extent of the damaged areas. The accompanying pictures provide some indication of the devastation.

Since much of the damage was done on Forest Preserve lands, which are protected by the State's Constitution so as to remain inviolate and forever wild, the Department found itself helpless to act in this emergency. On December 12, 1950, the Department requested formal interpretation of the Constitution as it might apply in this emergency from New York's Attorney-General. In brief, he opinioned that legislative action was required to give the Department authorization to clean up and salvage the blowdown timber by all possible methods which might be applied. In accordance with this opinion, and following a special message from the Governor, the Legislature enacted a new law in January, 1951, giving the Conservation Department necessary authority to proceed with essential cleanup operations, and through an amendment to the Finance Law set up a Forest Preserve Protection Fund which in effect was a revolving fund with a first instance appropriation of $200,000. All income derived from salvage operations were paid into this Fund and all operating expenses required by the Department in carrying out the salvage and cleanup operations were paid out of it. The original law remained in effect until June 30, 1955, and was subsequently extended until March 31, 1956.

Once the legal structure was clarified, and authorization obtained to proceed with the salvage operations, the Department directed its attention towards cleaning up those areas which presented the most acute fire problems and on which salvage operations appeared to be economically feasible. First efforts were turned towards repairing the forest fire fighting facilities so that they would be ready in time for the 1951 fire season. This work included the repair of telephone lines; clearing fire truck and foot trails; repairing fire towers, observer cabins and ranger cabins. At about the same time, work was commenced on cleaning up and restoring parks, public campsites and other recreational facilities so they too would be ready by the coming Summer season. Existing manpower and efforts were used to the greatest possible extent and, in addition, the Budget Director made $90,000 available for park repairs and provided $175,000 for restoration of fire fighting facilities, public campsites, etc.

After the various figures from the damage surveys were totaled, the estimates revealed that at least 25 per cent of the trees on over 400,000 acres of wild forest land were snapped off or ripped up by the roots. It was also estimated that about

60 per cent of this damage was located on State land. Volume estimates indicated a windthrow of over a million cords of pulpwood and about 40 million board feet of hardwood timber. A job of this size was obviously beyond the capability of the Department itself either to salvage the timber and pulpwood or to reduce the unprecedented fire hazard left by the storm. It was immediately apparent that a single bolt of lightning or carelessness by a single person could set up a major forest fire disaster. Outside help was needed to meet this danger and co-operation was obtained from the wood-using industries in this State, as they were in the best position to furnish manpower, equipment, and had the means for utilizing the material salvaged.

During the years of 1951 and early 1952, excellent progress was made, but in the Fall of 1952 there was a sharp decline in the demand for pulpwood. As a result, operations slowed down considerably and in many instances it became necessary for the contractors to shut down completely. Conditions did not improve during 1953. In this and the following two years every effort was made to find outlets for material other than pulpwood. Thus, a large share of the salvage materials went into the lumber industry during this period. While this industry consumed a substantial volume, the lack of large sawmills and experienced timber operators made it impossible for the Department to maintain its fire hazard reduction schedule.

It may be well to pause a moment and analyze some of the reasons which led to the decline in acceptance by industry of the salvaged forest products. It must be kept in mind that the trees had been tipped over or broken off and after about a year or so became dead material. As a result it soon was attacked by insects and decay-causing fungi. The hardwoods (beech, birch, maple, etc.) suffered first, and as early as 1952 blue stain and ambrosia beetles (wood borers) made their appearance in these species and rendered most of them unmerchantable. By 1953 deterioration had become started in the softwoods (white pine, balsam fir) and many of the companies refused to take balsam fir because of the large amount of cull caused by decay. In 1954 the spruce started to show signs of severe deterioration, and the paper mills refused to accept this species as well. At the present time, most of the remaining wind-thrown material is unmerchantable because of the effects of the work of Nature. Thus, even if the Department were authorized to continue sales of salvage material it could not be disposed of now because of these factors.

In spite of many complications, the results have been most gratifying. As of March 31, 1956, when "Operation Blowdown" was officially closed by Law, 183 contracts had been let. These called for the removal of an estimated 249,821 cords of pulpwood, and 37,370,500 board feet of lumber from 125,142 acres of land. Of the 183 contracts sold, all except about 40 have been completed successfully. Those remaining will perhaps never be fulfilled because of the deterioration of the wood. Our contract records indicate that actually 245,057.7 cords of pulpwood and 40,147,830 board feet of lumber were removed. Receipts from the sale of these materials grossed the State more than 1.1 million dollars. In addition to the material removed by formal contract, a number of local sales for small amounts were made. These grossed approximately $163,000. The total actual cash received from all sales amounted to $1,264,850.90. It is also estimated that the material salvaged from the campsites and other State areas by State forces and utilized by the Department has a value of about $166,000—thus making the grand total $1,431,320.90.

It should not be construed that this amount of money was deposited free and clear into the State's treasury. On the contrary, much of it was used to give fiscal support to the program for additional forest fire protection personnel; expenses and equipment; construction and maintenance of fire truck trails and fire trails; contract supervision and expenses; and State cleanup costs. Recently, $130,000 was segregated into the Forest Preserve Protection Fund for the purchase of land in the Catskill and Adirondack parks. The unencumbered balance remaining as of August 31, 1956, amounts to $64,355.63.

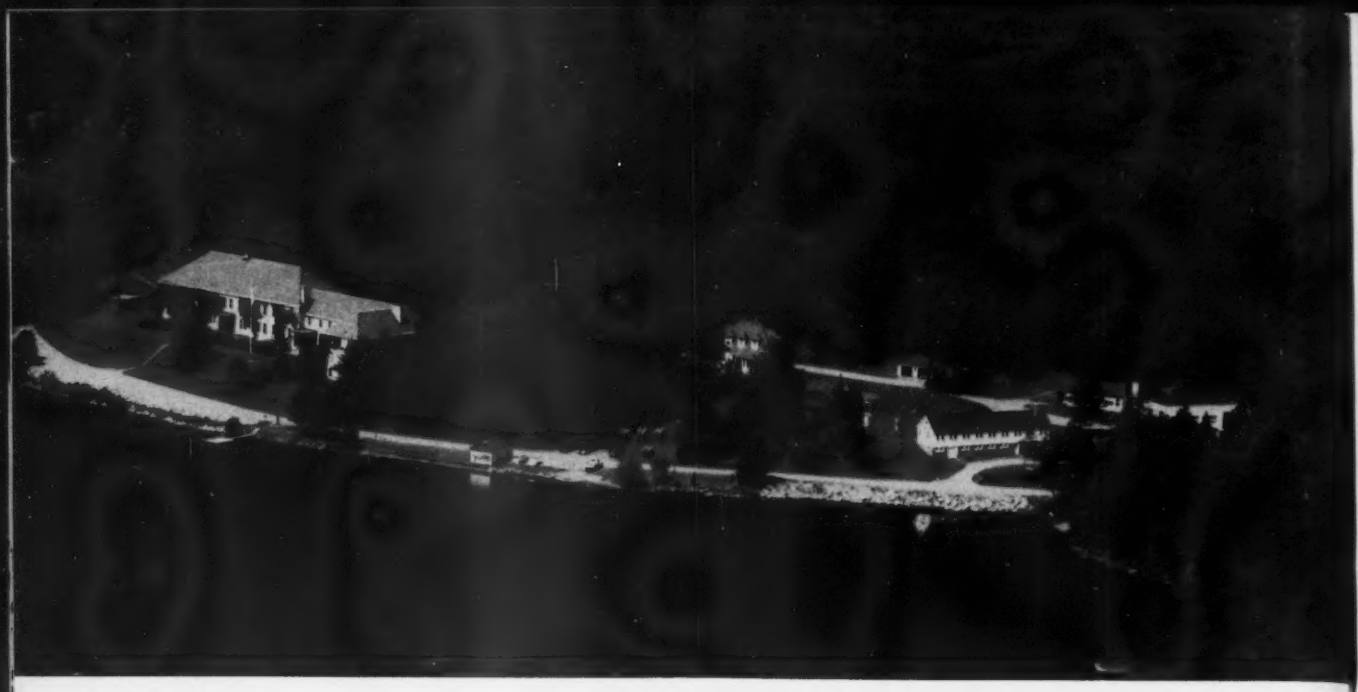
Now that the program has come to a conclusion, the question may well come to mind: "Where do we stand today?" Frankly, in spite of all of our efforts the fire danger is far from being over. The action taken by the Department has certainly eliminated a great deal of the fire hazard from the accessible areas, but in the inaccessible locations vast amounts of tinder remain. This, through individual carelessness or lightning, could easily be ignited and become the source from which a major holocaust could develop. We must consider that the great storm of 1950 did the major damage but not the only damage which the Forest Preserve has experienced. Every year since the initial storm a substantial number of softwood trees have been uprooted by moderate winds, and the hurricane "Hazel" of 1954 added considerably to the toll. The damage done by the secondary storms increased the Department's workload to no small extent and added materially to the cost of reducing the fire hazard problem. These additional costs could not be anticipated and have affected the final fiscal balance.

Since this is the final salvage report, it is only fitting to commend the general public for its wholehearted support in complying with the necessary precautionary meaures taken by the Department from time to time to safeguard the Catskill and Adirondack parks from fire. These measures included the periodic closure of vast areas of recreational land, the closure of miles of foot trails and many other similar public inconveniences. Almost without exception, you, the users of our vast out-of-doors, helped everyone by preventing a major catastrophe. The hazard still exists and in spite of the fact that the Department is proud of its forest fire fighting organization and the magnificient record it has maintained, all of us should remember that under the right conditions any one forest fire has the potential of setting off a major disaster. For this reason it is imperative for us to maintain our caution for several years to come.

It should also be recorded that without the fine support given to the Department by the Governor, the Legislature, sportsmen, conservationists, the Department field forces, and the wood-using industry, the job could not have been done. All played an important part in perhaps one of the greatest public projects of its kind in the field of conservation ever to be undertaken in the history of New York State. We extend our sincerest appreciation to all for helping us to be at least moderately successful in this gigantic effort.

—CHARLES F. BAAR, *Supervising Forester*

One and a quarter million dollars was realized from salvage operations



The Ranger School at Wanakena

IT was a raw, overcast morning in March when the train from Carthage pulled into the lonely station at Benson Mines. A few youths, weary from all night travel, got off and wondered what next. Soon an open, rack-bodied truck rattled into view with a ruddy-faced individual at the wheel. Without taking a second look, he told them to climb aboard, bag and baggage. Eight cold miles later they jolted to a stop in front of what was to be their home until the following February — the Ranger School at Wanakena.

Located on an arm of Cranberry Lake, 1.7 miles from the Adirondack community of Wanakena, it is the oldest institution of its kind and one of only two such schools in the United States (the other is in Florida). A division of State University College of Forestry at Syracuse University, the Ranger School trains men to fill the gap between the average woodsman and the professional forester.

In existence since 1912 it has been turning out graduates trained in practical forestry at the vocational level — fitted for such positions as assistants to forest rangers, forest estate managers, nursery and reforestation foremen, as timber cruisers and scalers, on forest road location and construction and as surveyor's assistants. Admission is limited to 60 per year and is open to men between 17 and 35 years of age who possess good character, a stable temperament and are physically fit. They must be high school graduates and must have satisfactorily completed courses in elementary algebra and plane geometry.

Including the class that graduated in February, 1956, he school has passed 1,212 men, about 78 per cent of those who entered. Satisfactory completion of the prescribed course does not guarantee a job but about 75 per cent of those graduated are employed in forestry or closely related occupations. Many students go on to attend professional forestry schools after graduation and are admitted with advanced standing by most such colleges. The College of Forestry at Syracuse admits graduates with a standing equivalent to a sophomore if they elect to take the general forestry curriculum and waives attendance at its 11-week Summer training camp on Cranberry Lake.

Life at the school, in its isolated location, is rugged with not much time for social activity and little opportunity for earning money. Students live in dormitories and self-discipline is expected. How to get along with the fellow next to you is stressed to the utmost, and if a student cannot adjust himself quickly he finds his stay a short one. With up to 60 students in residence and without a proctor to supervise behavior, it speaks well for the system to report that no damage has ever been done to the dormitories by horseplay or vandalism.

Students are quartered two to a room equipped with a double-decker bunk, two desks, two chairs and a locker. You make your own bed and help keep your own room clean. A warning bell sounds at 7:30 P.M. after which you are required

Students here, as everywhere, have to "hit the books"

A group of future foresters on a survey assignment

Cathedral Rock overlooks the school forest

Map making is a part of the curriculum

to be quiet. School doors are not locked and after scheduled classes students are free to come and go. However, evening assignments, keeping up scholastically, the lack of personal transportation and the scarcity of nearby outside diversion combine to discourage much coming and going. On week ends, however, there is ample opportunity within walking and canoeing distance for hunting and fishing enthusiasts. The Oswegatchie River, Cranberry Lake and nearby ponds offer good fishing possibilities and the deer and grouse hunting is as good as anywhere in the Adirondacks. And for the lucky ones, the cooks at the school are usually very co-operative. Once a year the athletically inclined have a chance to compete at various sports with the boys from the College of Forestry who come up from their Summer camp on Cranberry Lake.

The 44-week forestry course is a combination of classroom and laboratory instruction and study, field work and regular evening "book work." Fifty to 60 hours a week of study and work is the prescribed routine and lights in the laboratory, the drafting and the typewriting rooms seldom go out before midnight. Field work is emphasized and during Spring and Fall it occupies full time for several weeks. Students operate the tree nursery, plant the trees raised there on the school forest, work in the plantations and woodlands, survey and make topographic maps of the school property and run a timber cruise in virgin timber. A fleet of 20 canoes is maintained in order to get to some of these field exercises. Surveying is given special attention so that students become proficient in solving any problems which may arise in forest surveying work. Modern, labor-saving logging equipment is available and instruction given in its use. Recently the study of photogrammetry in forest work (the use of aerial photographs in making timber estimates), has been introduced. Other changes have been made in courses as needed to keep abreast of new developments and concepts in forestry practices.

Comprising a total of 2,330 acres of wooded, rolling country, the school forest is the scene of most field work. The property is bounded on two sides by State land and adjacent to several square miles of virgin timber. When originally acquired, about half of the school forest itself had been logged and burned, and across the water from the buildings is an area that had been logged of all merchantable timber but never burned. These varied forest conditions provide an excellent outdoor laboratory for the forestry student. A Co-operative U. S. Weather Bureau Station is maintained on the school forest and, during the Winter, readings of 40° below zero are not uncommon. Field work in this kind of weather with several feet of snow on the ground tends to either prepare or discourage aspirants for outdoor work.

For the past 35 years the Ranger School has had but one Director, and his name, James F. Dubuar, is synonymous with the school. This man has dedicated his entire career to turning out Ranger School graduates. He has not only made the school what it is but at one time or another has taught every course offered. When the occasion warranted, he has taken the time to personally straighten out students who were tending to wander off the beaten track. This resulted in one of two things —either the student squared away or he and the school parted company. The name of Dubuar has been associated with the school for so long that, even though he will retire on March 1, 1957, his influence is bound to be felt for many years to come.

AND so, this is the Ranger School. When we wrote there and announced our plan of doing a story on it, one of their comments concerned the expected flood of letters, following the publication of the story, from men who think they want to be forest rangers. So, let's put it this way: If you are not prepared to spend just about a year at hard, honest study; if you are not ready to adjust yourself to living in close proximity with others; if you cannot do without feminine companionship or a sports car for the duration; or if you think that all a ranger has to do is dress up in a green uniform and go around counting trees and rescuing damsels in distress, the Ranger School is not for you. Take it from one who should know. I was one of the boys who got off the train at Benson Mines that raw day in March back in the Thirties.

—Roy Irving

Planting of conifers provides shelter for deer, grouse and cottontails

shrubs! Fences now exclude cattle from 50,000 acres of woodlots and water areas. But perhaps the greatest change in our wildlife landscape has been the appearance of more than 800 new marshes and a thousand shallow pondlets.

Two years after the program got under way, wildlife biologists at Cornell University were invited by the Conservation Department to survey these accomplishments in habitat improvement on the land and to study the results of changes in game potential. Of each dollar spent, seventy-five cents comes from the Federal tax on guns and shells; the remaining twenty-five cents from the sportsman's license. It was immediately obvious that each dollar was being used efficiently as

Landowner will erect fence to prevent marsh shoreline grazing

Analyses of PR-48D

A SURVEY OF GAME HABITAT IMPROVEMENT

Wildlife biologists long have been aware that successful management of game in this country is not wholly dependent upon the development of more and bigger refuge areas; nor upon enactment of more restrictive laws governing seasons and bag limits; nor upon propagation and stocking of ever larger quotas of game. None of these measures by themselves is the answer but all of them are important tools when properly used in conjunction with the much more fundamental approach to managing our wildlife resources—that of habitat improvement.

In the accompanying article, Dr. Oliver H. Hewitt of the Department of Conservation at Cornell University reports briefly upon his studies and those of his graduate students on the effectiveness of the New York Conservation Department's 48-D work—a long term, Federal aid program to improve game habitat on the land.—Editor

IN April, 1948, Pittman-Robertson Project 48-D was started in New York. Its purpose is restoration and improvement of wildlife habitat. It operates chiefly on private lands — on farms where most of our small game is produced, but it affects State public hunting lands too. The habitat-building program includes four principal activities: (1) Planting evergreens in small blocks for wildlife cover, (2) growing and planting shrubs in various patterns to provide food and cover, (3) fencing of woodlots and other wildlife areas against grazing by livestock, and (4) creation of shallow wildlife marshes and pondlets for waterfowl and other wildlife. In nine seasons, under the direction of the Conservation Department's Ben O. Bradley, game management personnel have accomplished a stupendous job.

At the close of the 1956 season, our grouse, pheasants, cottontails and deer (and the sportsmen who hunt them) can thank P-R 48-D for 47 million coniferous trees, and almost 15 million fruiting

to physical accomplishments. However, the Cornell survey was to determine if game is more abundant, and hunting better in the areas remodeled for wildlife.

The results of this survey perhaps can best be summarized according to the various project phases:

Conifer plantations. It was found that the small blocks of planted evergreens are doing more for wildlife than had been expected. Planted chiefly for Winter shelter, the conifers are heavily used throughout the year. Sportsmen know that a large stand of even-aged conifers is no good for hunting, but in general, it was found that the P-R plantings have a number of characteristics that are just the thing for wildlife. First, they are of mixed species —from 10 to 20 rows of long-needled species (the pines) interspersed with similar numbers of the short-needled ones (spruces and firs). Second, wildlife plantings are usually on the worst soils and steepest slopes, producing uneven growth. Third, they are usually planted in conjunction with shrub plantings. Fourth, the harvesting of Christmas trees

from the conifer plantations helps, by providing openings in the plantation, to break up the uniform pattern.

Shrub plantings. At the Painted Post nursery, (see article, this issue), the Conservation Department is producing several kinds of shrubs that hold fruit into the Winter, which will serve as sources of food in emergency. By far the most important of these, making up about 90 per cent of the nursery output, is multiflora rose. The shrubs have been planted in patterns designed to fit into the farming plan, and to provide food and cover where it was conspicuously lacking. Hedgerows or "living fences" of multiflora rose are located between fields, along woodlot borders, or adjacent to conifer plantings. Occasionally small "wildlife areas" can be located in field corners. "Clump plantings" of up to 50 shrubs of mixed species may be placed in waste areas, or in conjunction with conifer blocks.

On many farms, only the poorer sites are available for wildlife plantings. Studies showed that shrub plantings were often slow to develop because of excessive or insufficient soil moisture, shallow soils, competition and shading. Multiflora rose, however, has shown remarkable growth under adverse conditions, and many plantings that looked poor in the first years are now providing cover and food.

Since pheasants have been observed feeding heavily on multiflora rose fruits in Winter, an experiment was made to find out if pheasants could remain in good condition through the Winter on a diet of rose hips alone. The results upheld our faith in the nutritive value of rose fruits — captive pheasants thrived through eight weeks of Winter weather without loss of weight.

Studies of wildlife use of shrub plantings made plain two important facts: (1) The plantings contributed well-used supplements to existing Winter habitat on the farms surveyed; (2) all plantings added new hunting spots, especially for cottontail rabbits and pheasants.

Fencing of woodlots and wildlife areas. Unquestionably, heavy grazing of woodlots by livestock is damaging both to the woodlot itself, and to its value as wildlife habitat. However, only a small proportion of the fenced woodlots examined during our study had been subjected to heavy grazing. The fencing program has been wisely shifted in recent years to accomplish better protection for wildlife marshes. In every case where unfenced marshes are adjacent to pasture land, heavy trampling by cattle and horses ruins the marsh edge and interferes with the growth of vegetation required by waterfowl. The problem has been solved in most cases by fencing the cattle away from the marsh, but allowing access where necessary to watering troughs.

Construction of marshes and pondlets. Several articles in previous issues of THE CONSERVATIONIST (Oct.-Nov., 1951; Dec.-Jan., 1951-52; Aug.-Sept., 1955; Oct.-Nov., 1955; Dec.-Jan., 1955-56) have extolled the values of shallow water impoundments for waterfowl, muskrats, etc.

The very satisfying story can be summed up this way: New York should be very proud of pioneering a most effective water-habitat program.

Intensive surveys by Harlan Brumsted, Harry Klein, Charles Dane and State waterfowl biologists Dirck Benson and Gerald Cummings show that production of waterfowl on New York's small marshes is even better than had been anticipated. Acre for acre of water area, duck production in New York ranks along with that of the Prairie States and Provinces.

Research by Arthur Cook and Harlan Brumsted has outlined the limits within which water levels in the marshes can be managed toward the creation of the most favorable habitat.

Landowner satisfaction. This is an accomplishment of P-R 48-D that has no project title, yet it may well be the most important achievement of the program.

In our survey of the habitat improvement program we have talked with the landowners about all its phases. The farmer may or may not be a hunter, but formerly he had little or no contact with the Conservation Department before agreeing to cooperate in the planting of trees and shrubs, fencing of woodlots and development of wildlife ponds. The wildlife habitat program has brought him pleasure, and sometimes profit. In many cases, his marsh has become a "wildlife headquarters"—a center of interest and recreation for himself and his family.

As word gets around by grapevine telegraph, more and more farmers want the things that 48-D can provide. Personal contacts between farmers and game managers have invariably made much headway in straightening out misunderstandings.

The Cornell survey of wildlife habitat improvement in New York will complete its activity this year, and the picture looks good!

—OLIVER H. HEWITT,
Associate Professor, Wildlife Management, Cornell Univerity

Deeper water in this small marsh revives "the old swimming hole"

Seven-year-old multiflora rose hedge provides excellent game cover

What's Ahead for P-R in New York

Here we have a look ahead to what's in store for sportsmen and landowners in New York under the Federal Aid in Wildlife Restoration Program. Elsewhere in this issue of THE CONSERVATIONIST, *Dr. Oliver Hewitt, Professor of Game Management at Cornell University, reports on what has been accomplished thus far in New York in just one phase of this P-R program, and analyzes the benefits derived through game habitat improvement—Editor*

SURPLUSES, whether they are commodities or dollars, usually cause considerable controversy but such is not often the case with game dollars—they're usually anything but surplus. Nevertheless, for several years discussions have flowed and ebbed concerning a substantial surplus of Pittman-Robertson funds that had remained unallocated in the Federal treasury. Contributing to this surplus have been underestimation of receipts in some years and resultant failure by Congress to make full appropriations. Also, and particularly in the early years of this Federal Aid in Wildlife Restoration Program, a number of states were slow to align their budgetary machinery to conform to Federal requirements for participation, and thus were ineligible for their share of the funds available.

Pittman-Robertson, or Federal Aid in Wildlife Restoration, funds are accumulated by the Federal government through an 11 per cent excise tax on sporting arms and ammunition. This money is, each year, apportioned to the States and Territories on the basis of land area and number of hunting licenses sold. To receive this money a state must match it with 25 per cent from state funds. New York's share, with matching money, has averaged about $600,000 for the past several years.

This past year the P-R dollar surplus controversy waxed hot, and action was finally taken by the Congress to allow for distribution of the surplus on the usual basis, but to be spread over a five-year period. New York's share of this surplus amounts to approximately $145,000, (including the State's contribution). Also, it looks as though the regular annual apportionment will be a little higher and a conservative estimate of the total would be about $750,000—a substantial gain—and needed, too. If everything remains normal we can expect about this amount, starting this year, for a period of five years, after which the surplus will be exhausted. At that time apportionments will revert to the tax collected for that year.

The increase is going to be most helpful in bettering our present program and will allow for some expansion. Because P-R funds account for approximately two-thirds of the total State game program, careful planning must assure its substantial use. The total increase for each year is less than $150,000, and when this is distributed over a State as large as New York we can't do anything very spectacular. Actually, one substantial waterfowl development project, or the acquisition of several thousand acres of land for a single game management area can make a big inroad on that amount. But the long haul is the important thing and at the end of five years the results of these additional funds will be significant and of long duration.

In the limited space that we have, let's review briefly the plans for P-R for the coming year. We will divide the total allotment proportionately into several major categories based on our long-range needs.

Investigations or Research: Wherever possible it is best to have reasonably complete information before we embark on long-range and often expensive development programs. Accordingly, we expect to allot approximately $130,000 to fact finding and improvement of our present methods of management and development. This will be accomplished as in the past with a competent staff of well-trained and experienced biologists, and with assistance from State Universities. What are these projects? BIG GAME—Deer are one of the State's most important game resources and their population dynamics and proper management is a complex and never-ending problem. Black bear, New York's real trophy species, will receive more attention (we have live-trapped and recorded data on 59 animals thus far this year). (See "A Bear by the Tail," CONSERVATIONIST, October-November, 1956.) SMALL GAME MAMMALS—The cottontail still tops the small game preference list for the average hunter and we have more and better information than ever before to establish productive management measures. The varying hare is being established in new covers with satisfactory results. The European hare's status is being examined to see if and where it may fit into the hunting picture by careful management in proper places. The coyote—his food habits, range, breeding potential, and control is being examined more closely. UPLAND GAME BIRDS—Better management techniques for both wild and farm-reared pheasants are being developed. Hungarian partridge and quail are being introduced in new areas, utilizing hardy, wild-trapped stock. Better propagation and stocking methods for farm-reared quail are being developed. The wild turkey, already established in limited areas, may supply some hunting opportunity in the near future. Attempts will be made to further extend and establish populations and develop management techniques for sustaining them. WATERFOWL—The banding and record keeping for thousands of birds each year; analysis of habitat

Oak Orchard Game Management Area attracts geese by the thousands

improvement problems; productivity within the State; stocking new species for resident breeding; aerial and ground surveys of migrating populations with an eye toward better hunting regulations; checking the hunter harvest and assisting in the selection of suitable areas for acquisition, require substantial work.

WILDLIFE FOOD AND COVER IMPROVEMENT —A new project aimed toward the development of economical and practical means of stabilizing game covers at their optimum productivity by mechanical and chemical means. Also, development of better food and cover species, and, more speedy methods of establishing them. This work seems to be an all important key to raising and maintaining adequate wild crops of game. GAME DAMAGE CONTROL —Even the most sporting species get into trouble, periodically. The landowner needs to know how to control the damage without destroying the offenders. PATHOLOGY AND PHYSIOLOGY—We are often confronted with outbreaks of disease in wildlife, and knowledge of the physiology of each species we deal with is of considerable importance in disease control.

Development or Management: Putting knowledge to work to secure the best possible results. It is here we allocate the largest proportion of the P-R funds, and this coming year we plan to use approximately $520,000 for this purpose. What are some of these projects to include? WILDLIFE HABITAT DEVELOPMENT ON PRIVATE LANDS (48-D)—The majority of game is reared and harvested on private lands. Sometimes the landowner, on his own, will provide better conditions for wildlife on his lands, but more often than not he requires additional incentive because wildlife is necessarily secondary to making a living from the land. With some assistance, though, we have found that he is interested in establishing a small marsh, a shrub border for food and cover, conifer plantings for cover, fencing odd areas against grazing for wildlife and other proven game management practices. For the past eight years this project, under the supervision of the District Game Managers, has improved many thousands of acres of wildlife habitat on 10,000 individual farms across New York State. This program receives a lion's share of the development funds and we expect to use some $375,000 on this work next year. STATE GAME MANAGEMENT AREAS—The Bureau of Game is responsible for some 31 areas totaling more than 100,000 acres that are managed primarily for the highest possible production of game. The majority of this acreage is open to public hunting. Many of these areas were acquired with P-R funds. Each year certain of the areas, according to their requirements, receive intensive development work. This coming year we expect to do extensive work on the Perch River area (4,409 acres) in Jefferson County; the Howland's Island area (3,200 acres) in Cayuga County; the Lake Alice area (648 acres) in Clinton County; the Quogue area (238 acres) in Suffolk County; the Oak Orchard area (2,259 acres) in Genesee-Orleans counties; and the Wickham Marsh area (273 acres) in Essex County. The work will include cover improvement, small marsh impoundment, planting of grain crops for food, road improvement, maintenance of structures, marking of boundaries, etc. Some minor intensive work will also be done on several of the other areas. Also, we are anticipating a co-operative waterfowl development of approximately 2,000 acres on the St. Lawrence, with the N.Y.S. Power Authority, if proper arrangements can be made.

Acquisition: Purchase or lease of additional acres of game management lands is already well under way. Next year we expect to add additional acreage to existing areas and acquire initial acreages for several new ones. For this work approximately $75,000 has been set up, although this figure may have to be adjusted according to the availability of the lands. With this work goes a project entitled SURVEY AND INVESTIGATIONS that keeps our records up to date on the lands most needed, and their availability. The preliminary engineering and survey work are accomplished here.

Co-ordination: This phase, last but not least, is a specific project designed and set up to provide planning, supervision, integration and analysis for all P-R work. It is here that a supervisory and co-ordinating staff is provided in the form of two trained biologists, stenographic, clerical, bookkeeping, and statistical assistance. Land negotiators and final acquisition proceedings are handled here. An observation 'plane, pilot and observer render service to all projects. This necessitates the careful planning of each project to be sure it fills a specific need; the clearing of these plans with the Fish and Wildlife Service and other co-operating agencies. The co-ordination project is responsible, too, for providing personnel, equipment and materials at the proper time and place for expediting all the work. Reports are analyzed and interpreted for application to management and made available in technical form for other workers in the field, and in non-technical form for the better understanding of the general public.

Since 1938, when the P-R Program was first established by farsighted legislators and conservationists, the system has been instrumental in assuring permanency to wildlife conservation and perpetuating the healthful recreation of hunting as a sport and the varied esthetics that go along with it. It has filled a need that few Conservation Departments can properly cope with—more adequate funds to do a job that increases in importance and complexity each year.

We believe the program is substantial and will continue to do our utmost to guide it in such a manner that public hunting, as a recreation, will be assured for years to come.

—E. A. WESTERVELT, *P-R Co-ordinator*

Long Island's Fluke

THE FLUKE or Summer flounder is a member of the flatfish tribe—a group of salt water fishes dedicated to the principle that it's best to take things lying down. And that's exactly how they spend the major portion of their lives—lying flat on their sides on the mud and sand of the ocean floor.

As the group's name suggests, they're admirably constructed to put this philosophy to practice. The only drawback, one would surmise, is that they'd be doomed to a split-level perspective of their watery world; one eye gazing heavenward, the other peering, at uncomfortably close range, into the murk of the sea bottom. But the fluke, in common with its flatfish relatives, long ago solved that problem—they simply move their "grounded" eye around next to their heavenward eye, multiplying their sight by two in the direction it counts most. This neat trick is accomplished about the time they are three-quarters of an inch long—up to which point they swim about and look like any normal fish. The operation begins with changes that occur in the skull structure bringing about in the fluke's case, a migration of the right eye over the head to a position adjacent to the "stay at home" eye on the left side. From this position, it looks upward into a water world above of fish hooks, shrimp, and normal, upright-swimming fish.

But the fluke's talent does not end with this one achievement of migrating eyeball and socket, for it is also able to simulate the pattern and color of the bottom upon which it lies. Now, it is true that other fish change in color, and in an age of such products as platinum mink, sheared beaver and badger bristles, it would usually not be much about which to become overly excited. But, although the general color of the upper side is a mottled brown, the fluke produces tints of blue, green, white, black, and of course, pink. Who could ask for more?

Even so, there is more, for the fluke is one of the salt-water anglers' most popular fish. When fluke return each Spring from the offshore wintering grounds, boatloads of sport fishermen dot the waters of the bays on the south shore of Long Island and drift in search of this fish of surprising fighting ability for its size. In the 1956 Summer season, a quarter of a million hook and line enthusiasts bounced the bay bottom with lead-sinkers and baited hooks, crossed lines with one another, and went home with close to 2 million pounds of this flatfish. These figures reflect the tremendous recreational value of the fluke.

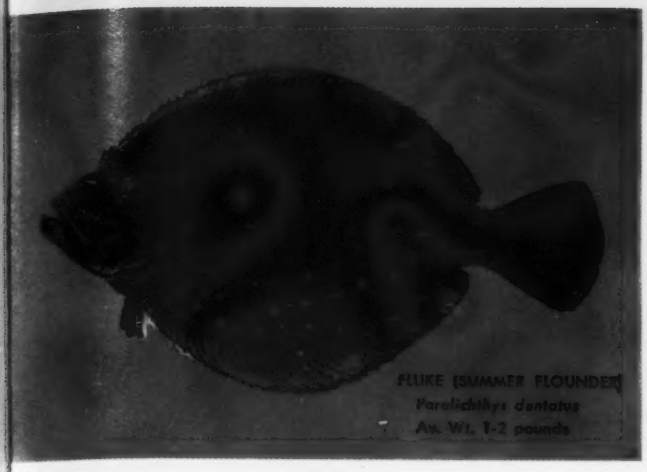
In addition to the ever-expanding sport fishing interest, there exists an intensive commercial fishery for fluke in the waters of New York. This fishery is also of great value, for it brings to the consumer a food of high quality, particularly since the shape of the fish lends itself to filleting. In recent years, the annual commercial catch in local waters has been 3 million to 4 million pounds, valued at $600,000 to the fishermen. The vast majority of the landings have been made by trawlers in the inshore ocean waters south of Long Island. It is therefore evident that the fluke resource is of considerable economic value to the commercial fishermen. It is evident, too, that all this adds up to tremendous pressures upon this marine resource by both the sport and commercial fishermen. These fishing pressures have been intensified by a Winter trawl fishery which, since 1928, has taken several million pounds each Winter from the offshore grounds to which the fluke migrate every autumn. These offshore grounds are situated in 40 to 80 fathoms of water in an area between Montauk Point and the Virginia Capes.

These combined fishing pressures have resulted in concern by fishermen and biologists as to the ability of the species to maintain its present high level of abundance. As long ago as 1938, when State investigators conducted a biological survey of the salt waters of Long Island, it was the feeling of fishermen and other interested persons that there was a "marked decline" in the fluke catch. The commercial catch for that year amounted to 1,627,132 pounds, while the recreational fishery in Great South Bay and adjoining ocean regions amounted to approximately 27,000 fish. In recent years many sport fishermen and boat captains have complained of reduced catches of fluke and a sharp reduction in numbers during late July and throughout August, when formerly this time of the year was the peak of the recreational fishery. During the Summer of 1956 an intensive statistical study of the fluke fishery of Great South Bay was begun to determine whether these opinions were based on fact or fancy.

The recreational fishery in Great South Bay includes a great many boats of assorted types and a large number of anglers, some of whom fish from piers and other man-made structures, as well as from the shore. A census of the "for hire" fishing facilities in this area revealed that there are 35 open boats and 70 charter boats available for fluke fishing during the season. In addition to the large charter and open boats operating during this period, there are about 500 rowboats and skiffs available at 23 fishing stations along the south shore from Amityville to East Patchogue (the area included in the survey). The larger boats may carry anywhere from a dozen to 50 passengers, while the small boats may have a single fisherman, or at most three or four. Most of the small craft, despite the appellation "rowboat," are propelled by outboard motors owned or rented by the anglers, and there are few sport fishermen today who actually row to the fishing grounds. No canvass was made of the total number of private craft that ply the shallow waters of the bay and adjacent ocean. These number well into the thousands, however, and most are used for fishing at least part time. They are a very important factor in the recreational fishery.

By using regularly scheduled low-level aerial reconnaissance collated with ground surveys and fleet records, an estimate of the total activity by the various types of boats (number of sailings), and the number of passenger-anglers were made. Also, the land-based anglers were counted periodically and their numbers for the season estimated. The resultant total of 261,013 anglers during June through September in this area is a very impressive one. Of this angler activity, 228,053 or 87 per cent fished from boats while 32,961 or 13 per cent fished from banks, piers or in the surf. The extreme importance of private boats in the fishery may be recognized by the fact that 33 per cent of all angling for fluke during the season was done from these craft ranging from palatial yachts to outboard rowboats. This is by far the largest single category of fishing activity in Great South Bay. Of the other three types of craft, 22 per cent of anglers fished aboard open boats, 18 per cent from charter boats, and 14 per cent from rented rowboats and skiffs. The non-boating fraternity of fluke fishermen was 13 per cent.

The total catch of these sport fishermen has been calculated at the rather staggering figures of 1,759,172 fluke, ranging in weight from about ¾ of a pound up to giants of 15 or 16 pounds—generally referred to as "doormats." Most of the fish, of course, are of smaller size, but a surprising number of 4- and 5-pounders succumb to the tastily baited hooks of the anglers. A conservative estimate of the total poundage of fluke taken by the sport fishery in Great South Bay and adjacent areas would be about 2 million pounds. Actually, the total count for the 1956 sea-



A MILLION DOLLAR FISHERY

son will be greater than 1,759,172 fish because the above data do not include the catch of the 33,000 bank and pier anglers whose records have not yet been analyzed. These fishermen, however, do not fare nearly so well as do the boat anglers, who are very maneuverable and can follow the fish with regard to tide and season. It is doubtful that the entire catch by shore-bound anglers will amount to much more than 40,000 to 50,000 fluke.

Of great interest is a study of the comparative catch from year to year. This is done by establishing a unit-of-effort, or fish per angler per trip, for the season (or month or other subdivision as needed), and comparing these data with those of other years. This must be done because the total catch is frequently dependent on the number of anglers involved, and therefore not indicative of actual abundance. An analysis of the unit-of-effort catch reveals the relative abundance or availability of the fish in question. The accompanying table shows the unit-of-effort catch for fluke in Great South Bay during June, July and August of 1955 and 1956 as compared with that for the earlier report of 1938's investigators.

A glance at the table immediately reveals that present day anglers are doing enormously better than the fluke fishermen of 1938. For example, during August of 1938 open boat fishermen took 1.9 fluke per angler. By comparison, in 1955 they caught 3.1 fluke per angler, and during the superlative 1956 season they accounted for 7.9 fluke per angler. The same pattern is disclosed by comparing any of the facilities for any one month—a much better catch per unit-of-effort (fluke/angler) in recent years over that of the 1938 season and a better return for effort during 1956 than in 1955. By looking further at these figures, it becomes evident that fishing for flukes both during 1955 and 1956 was much better in June and July than it was during August. On the other hand, back in 1938 it is obvious that the most fluke per anglers were taken during August. This tends to verify the sportsmen's contention that fluke fishing peters out much earlier than it did formerly, but they probably are not justified in saying that the fishery is declining. Despite the tremendous increase in the number of boats and anglers, not only has the total catch increased, but the catch per angler is better than ever! But caution is needed here, since there may be tremendous yearly fluctuations that only a number of years' data can reveal. It is very possible that sport fishermen are catching the available fluke earlier in the season, so that by August the numbers are thinned out to the point where fish are harder to come by.

To investigate this possibility, as well as to gain more knowledge of local and seasonal migrations, a tagging program was undertaken in the month of June, 1956 A total of 926 fluke were captured in Great South Bay by means of an otter trawl, marked with Petersen disc tags and released. With the co-operation of fishermen, who returned the tags and offered information concerning the date, method and location of recapture, it has been possible to obtain a more complete picture of seasonal catch fluctuations, as well as the rate at which the fluke population is fished.

Fluke Catch Per Unit-of-Effort, Great South Bay

	Fluke Per Angler								
	June			*July*			*August*		
Facility	1938	1955	1956	1938	1955	1956	1938	1955	1956
Charter Boats	4.2	6.5	10.9	2.7	8.9	8.5	3.5	3.7	5.0
Open Boats	0.7	4.6	11.2	1.0	6.1	10.3	1.9	3.1	7.9
Rowboats	0.1	5.5	9.0	0.5	4.8	9.4	1.3	1.9	4.0

Recaptures as of the last of October, 1956 have numbered 241, a return of 26 per cent, which indicates that the fishing pressures have been at a high level this year. Of these returns, 225 or 93 per cent of those fish recaptured, were taken by hook and line methods, demonstrating that the sport catch has considerable effect upon the resource.

That this reduction is due not to migrations offshore in August, but to the removal of large numbers of the fluke population by the sport fishery in early Summer is evidenced by both the heavy rate of cropping and the fact that returns in 1956 indicated no movement of fish out of the bay until the middle of September.

It is also interesting to note that the local movements of fluke within the bay show no sign of a schooling habit. Returns within a period of one week from one day's tagging effort are spread from Moriches Bay to Fire Island Inlet, a distance of approximately 24 miles. This non-schooling habit of bay fluke is verified by the nature of pound net catches. During the season of migration to and from the wintering grounds, these stationary fish trap catches may be high because the fluke school at these times. Once the fish are within the bay, however, pound net catches fall off, for in the bay it seems the fluke fan out in any direction in which their tails take them, irrespective of the travel of relatives and non-relatives.

There is much more to be learned about the fluke resource, for in most instances one year's information only establishes a place from which to start. Many questions remain—for example, how do inshore bay catches affect inshore ocean catches over a period of years? What are the normal fluctuations of the fishery, and is it possible to predict future catch abundance?

During the current season, records show that 228,053 fishermen took a total of 1,759,172 fluke.

Comparable statistics for several years may reveal the range of the fluctuations in catch to expect, as well as the growth of this and associated fisheries in our south shore bay area. Other questions will arise, and it is fortunate that the fluke resource is of sufficient economic and recreational value to warrant continued study.

—JOHN C. POOLE, *and* IRWIN M. ALPERIN, *Aquatic Biologists, (Marine)*

West End Junior

TO get my story across I'll have to go back to the days of my boyhood. Those were the days when most other kids were playing sandlot baseball, just as they do now. But I was different. As soon as school closed, I used to rush home, grab my fish pole and take off for some pond or stream nearby. My outfit consisted of a branch with a piece of store cord tied on the end of it, and on the end of the cord was the usual bent pin made from a safety pin. I got plenty of sunfish and perch—and I also got a lot of enjoyment out of just being outdoors. All this meant a lot to me, and I have never forgotten any of it.

When I got older I began to think about just how much all this had meant to me, and how much it could and should mean to the kids I saw running around the streets in our neighborhood. I felt that my experience in the outdoors had been very valuable to me, and that these kids should have the same opportunities that I had. So I started taking these kids on fishing and other outdoor trips, and I continued to do that until my car got too crowded.

But when that happened, I just couldn't stand the idea of turning down boys who wanted to go. Then the idea came to me that perhaps a junior sportsmen's club could be organized—a club which could do on a much bigger scale more than I was personally able to do. So, in February, 1951, I went to the board of trustees of a local church and got permission to conduct meetings in their basement. Then I borrowed a mimeograph machine and got out some information to the effect that there would be a meeting in the basement on the next Friday night. Any kid between the age of 8 and 15, who was interested in the outdoors, would be welcome at the meeting.

Some twenty odd young sportsmen turned out. At that first meeting, we adopted the name for our club, and dues were set at ten cents, with meetings to be held every other Friday night. To make this something more than a "paper" organization I rebuilt my small truck with rack sides and seats, so that there would be transportation for fishing and other outdoor expeditions.

Then the second meeting rolled around and I think that each member must have brought a prospect because when the meeting was over our membership had doubled. After the third meeting we had seventy-five members, and were in real trouble with regard to space. We had to set up a "waiting list." We had to do this, because who wants to keep a kid out of an organization that he wants to belong to? And walking down the streets of Newburgh, I was often asked: "Uncle Johnny when can I get to be a junior sportsman?" Those words were heartbreakers, so I took the problem up with our newly-appointed board of trustees.

These trustees (there are five) were set up as a board right at the start. Their job, along with mine, is to transact affairs not understood by the boys, but other matters are handled by the kids themselves. They nominate and elect their own officers and conduct the business meetings. There's really quite a kick in seeing a young fellow 8 or 9 years old stand up and address the president and make a motion. Then another of about the same age takes the floor to present the case for the opposition. Sometimes a motion is carried, sometimes knocked down. But it is all *serious* business.

At one of the early meetings I asked the boys how they would like to own a bus of their own so that they could really get around to fish and camp. The response just about took the roof off. Of course the trustees thought I was nuts, but they gave me the go ahead. I wrote to senior clubs in our area, civic clubs, neighbors—in fact, any one I could think of who might be willing to help out. We rounded up $950. With these funds available we bought a retired school bus, put it in shape, took out an insurance policy and registration. Then, with the "rolling stock" ready to operate, each boy went out to earn one buck, then went to his Dad or Mom to meet his earnings. Thus a two dollar subscription was obtained, and this gave each member of the club a free bus pass for a full year.

Then we had some more membership troubles: Another waiting list had come up. We had only 100 members, but another 25 were knocking at the door. Where to put them? So again we went to the trustees and this time we really stuck our neck out: Let's buy a lot and build a club house on it. Of course the trustees thought I was getting crazier all the time, but they must have been a bit crazy too because they went along with me. I'm almost ashamed of the deal I made with the fellow who had a suitable lot, but he seemed to think that this was a good

Above: Junior Sportsmen's "Do It Yourself" Club House in Newburgh

Lower Right: Obviously, there is no lack of interest here

Below: Fly-tying class; one of the many club activities

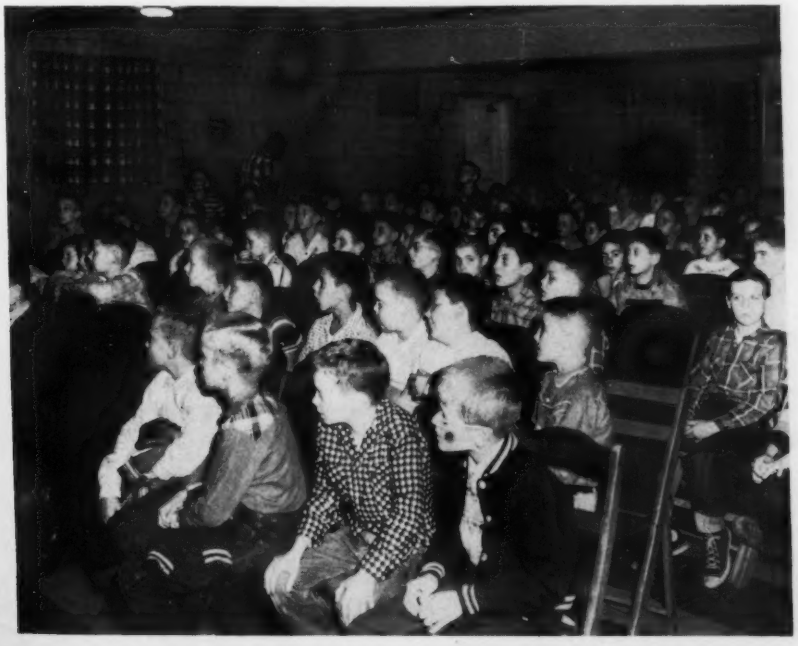
Sportsmen's Club, Inc.

by JOHN A. NYSTROM, *Director*

Here is a story of how one group of civic-minded people and conservationists in Newburgh are heading off juvenile delinquency by teaching conservation and sportsmanship to the youth of their community.

Fortunately for all of us, there's no patent on this idea; variations on the same theme are being sponsored by sportsmen's and civic groups in many cities and towns all across the State.

But there is plenty of room for more of the same and, personally, we can't think of a better service to the future welfare of our country than teaching conservation of our natural resources today to the citizens of tomorrow.—Editor.



cause and was willing to take a loss on it. As to raising funds for the building, we got the boys to go and tour the neighborhood with my beaten up truck, collecting junk. We soon had one hundred bucks. Other excursions produced some more cash. But the main costs of the building were met by fund-raising campaigns conducted in senior sportsmen's clubs, civic and other clubs in the neighborhood. From these sources we got about $4,000—enough to obtain the materials necessary to build the club house. Incidentally, most local concerns sold us this material at cost, or even less.

Then the boys, and quite a few of their Dads too, pitched into the actual building and the work began in the Spring of 1953, and before Winter set in we had the roof on. We also had a pot belly stove at one end of the room and a kerosene stove at the other end, with the smoke stacks going out the windows. For our first meeting in our new club house, the boys had to bring in chairs of all types, but every one had a seat.

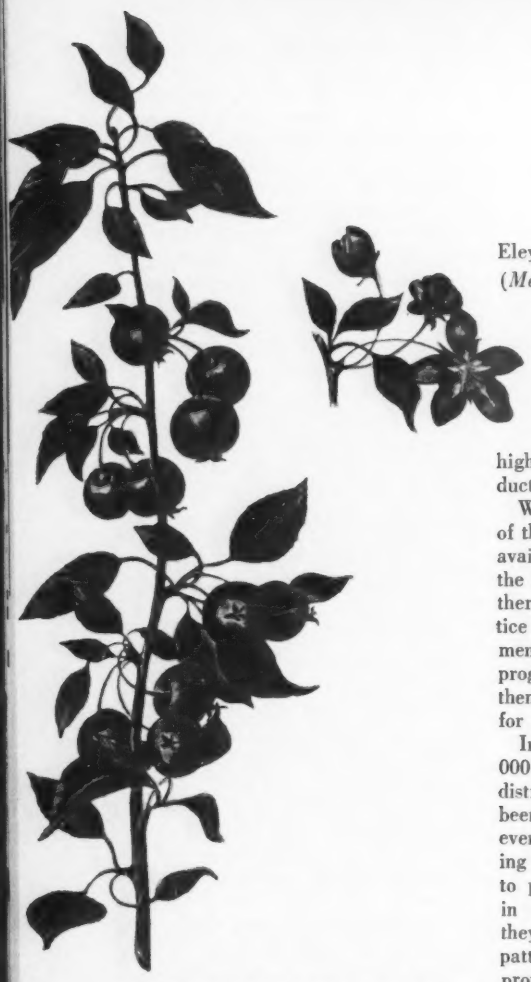
Then when Spring came, we launched our "sportsmen's special"—our bus. We went fishing, took day and overnight trips, went camping, had .22 rifle shooting on our range in the country, made visits to fish hatcheries and other points of interest. The boys were learning about the outdoors, and they loved it.

They were not just having a good time. They had that, of course, but they also learned a good deal about the fundamentals of conservation, and I'm very sure that they will never forget it.

Today, as I see it, our junior sportsmen's club serves two basic purposes: (1) To teach our young people an intelligent appreciation of our outdoors; and (2) to combat juvenile delinquency. We still hold meetings every other Friday night, and dues are still ten cents or a nickel per week. The club is open Monday, Wednesday and Friday nights, and on Saturday afternoons, the boys come to see movies on conservation, to shoot at the range, to qualify for NRA student certificates to obtain a hunting license, to take instruction in archery (we have our own field archery course)—or just to sit around and read and talk. In addition, we have a pool table, shuffle board, ping pong and other games that can be played regardless of the weather.

This is a club for boys, junior sportsmen—sportsmen and citizens of tomorrow. Each group within the club is under the guidance of a club director or trustee, but still the boys are pretty much on their own. We have more than 300 members now, and the club is still growing. So, of course, are the problems. But we think we can solve them as we have in the past—and get quite a kick out of doing it.

The Nursery a



Eley Crabapple
(*Malus purpurea eleyi*)

THE Division of Fish and Game's Bureau of Game is responsible for operating the State's shrub nursery at Painted Post in Steuben County. With changing programs and needs the nursery has been operated successfuly by the Division of Lands and Forests, which purchased the 80-acre tract in March, 1929, the Soil Conservation Service and, since 1946, by the Bureau of Game through agreement with Lands and Forests.

What is the purpose of growing shrubs at this nursery? Briefly stated, the plants are raised to provide, in open areas where they will be planted, improved conditions for wildlife food and cover, but also to provide for soil erosion control and various other special purposes. Incidentally, the shrub nursery does *not* produce plants to be used around suburban properties for hedges or general beautification. To meet the needs of wildlife and soil erosion control, stress is laid on utilitarian qualities rather than ornamental values. On the other hand, certain species that rate high aesthetically are produced, simply because they also rate high for vigor, hardiness and fruit production.

Who may obtain the shrubs? The policy of the Department has been to make them available, without cost, at the nursery to the Soil Conservation Districts (of which there are 45 in the State), to Forest Practice Districts (15) and to organized sportsmen's clubs. Members of the District programs and the clubs in turn, receive them from their governing committees for field planting.

In the last ten years more than 11,200,000 small plants have been grown and distributed from the nursery. They have been planted at woods edges and around evergreen plantations, as hedges or living fences, along stream or pond banks to prevent erosion or on untillable spots in cultivated fields. In these locations they have fitted into a good land use pattern by acting as soil binders, have provided food and cover for birds and animals useful in controlling insect pests, and have added beauty and value to the properties. In these same locations wildlife seeks food and cover and populations of grouse, rabbits, pheasants and quail have increased with the added food and cover. Wildlife needs a balance between breeding, escape and Winter cover, as well as a year 'round supply of food and water, and shrubs properly located and selected as to type contribute a great deal toward establishing this balance. Hedges serve also as protective travel lanes for birds and animals.

How have the plants presently being raised at the nursery been chosen from the host of species and varieties available? A testing program carried on cooperatively between the Soil Conservation Service and New York and other states, under actual field conditions, resulted in the choice of the majority of those grown at the nursery. In addition to such factors as vigor and hardiness, acceptability of plants to farmers, the plants' utility to wildlife, its utility in soil conservation and its resistance to grazing, were considered.

However, work in selecting useful plants is continuing. Several years ago, through co-operative efforts between the Bureau of Game and the Conservation Department of Cornell University's College of Agriculture, an evaluation of a sample of the shrub plantings was made. This evaluation pointed up the need for adequate preparation of the area to be planted to shrubs, care after planting, and the need for further testing of shrubs and selection of species and strains that held their fruits well into the Winter period.

To implement and facilitate this recommended production program of superior plants, important personnel assignments were made this year. A trained Horticulturist, John C. Kuehnle, Jr., was appointed in charge of the nursery. Secondly, Ralph H. Smith, an experienced member of the Bureau's research staff, who has excellent qualifications as a field botanist and considerable knowledge of horticulture, was given the assignment as part of his duties, of making plant selections. With these two men working as a team and through the co-operation of others, both within and without the Department, there seems every reason to expect advances in obtaining superior plants and development of techniques to produce the desired plants and also their establishment in the field.

Observational plantings have been started on several of the State's game management areas to test such species and special selections which may be made and produced at the nursery. The nursery will play the important part also, of being the center for increasing small stocks of plants to provide sufficient numbers for disseminating them widely. This will necessitate establishing sufficient stock plants to have a source for ample seed, cuttings and scion wood. Certain of the desired plants will come true from seed. In this category, for example, will be certain of the crabapples, viburnums, Autumn olive and lespedeza. Other selections or clones, to retain their special characteristics, will have to be propagated from cuttings. Included in this group, for example, will be certain apples, crabapples, hawthorns.

Mentioned earlier was the fact that shrubs were distributed to the sportsmen's clubs. This has been done through the offices of the District Game Managers by providing an assortment of the shrubs

at Painted Post

grown at the nursery, bundled in lots of 50 plants, with several seedling evergreen trees mixed in. If planted conscientiously by the recipients, in odd spots with reasonably good soils, this sportsmen's planting program has a great potential for improving wildlife food and cover conditions over wide areas. It is to be hoped that the county federations of sportsmen's clubs will continue to plug this planting program. It is planned to have at least 50,000 plants available for this program annually.

There are problems in any venture such as running the nursery and producing plants that will survive under field conditions with the natural limiting factors of climate, soils, and competition with other plants. But there is also the hazard of possible serious wildlife damage before the plants are established. This wildlife hazard from deer and rabbits can be expected, in certain locations, to be sufficiently severe on crabapples that grafting scions on wild apple stock may be the only satisfactory means of establishment. Then the question arises as to how much of this intensive type of work can be done.

Whether one can provide browse plants with reasonable cost for deer in problem areas, such as has developed in the Chenango Valley section on southerly slopes where deer concentrate in the Winter, is another question. When an area has been overbrowsed recovery is usaully a slow process. If large quantities of food plants established either through planting or seeding could be brought along at relatively low cost and survive despite heavy browsing, this would go a long way toward solving a serious problem. Which are the plants that will tolerate heavy browsing and continue to provide nutritious food? Answers to these and similar questions will be sought, and as answers are found the nursery will play an increasingly important part in the food and cover program basic to wildlife management.

Only part of the species or clones grown at the nursery are illustrated on these pages. These that are shown belong to important groups of wildlife plants which are fascinating to those who are interested in woody plants. Let's give just a few facts about those pictured.

CRABAPPLES. Many of the crabapples are spectacularly beautiful ornamental trees or shrubs which because of their hardiness are available to people in all parts of the State for landscaping. Varieties, properly chosen, will give bloom for a month and have the merit of being ornamental in the Fall, also, because of their prolific fruit, usually red or yellow. Most of the best are of Asiatic origin. Nurserymen are growing more of these in response to public demand.

Species or clones valuable for wildlife are those that bear fruit annually and hold their fruit into the Winter. These are the ones that will be favored at the Painted Post Nursery.

Japanese Flowering Crabapple
(*Malus floribunda*)

VIBURNUMS. Both of the species shown are hardy natives that can be grown anywhere in the State. The nannyberry on good fertile sites develops into a tall shrub. In May or June it has large showy clusters of white flowers, the clusters measuring about five inches across. The fruit ripens in the Fall, is dark blue with a grape-like bloom and is edible and sweet. Wildlife find the fruits very attractive in late Fall.

Its cousin, the highbush cranberry, has considerable value as an ornamental plant, with the typical cluster of blossoms of the viburnums, in the Spring. In the Fall the leaves turn a bright red and the red fruits hang well into the Winter. Game birds find the berries as a source of food, and deer browse the shoots.

BAYBERRY. This small native shrub, attaining a height of six feet is found naturally mostly along the coast, but occurs also in sandy locations in western New York. The leaves hang on into the Winter, bronzing somewhat and the fruits ripen about October and remain on the plant through the Winter, affording Winter food for game birds. Its low habit and its tendency to spread by stolons make it a good plant to provide cover in the Fall and Winter, too. It should not be planted in alkaline soils, but otherwise it adapts well to varied soil conditions, and its resistance to drought and its hardiness and handsome appearance recommend it for wide planting.

The foregoing descriptions have been confined to the shrubs illustrated. There are others, such as the multiflora rose and basket willow, to mention two very important species, which form a large part of the nursery's production. Most people are aware of the value of these for fences and bank erosion control.

It must be remembered that best results from shrub plantings can be obtained where soil preparation, fertilization and mulching are practiced. Where a little effort and preparation are made, and that includes placing requests in the Fall and Winter, rather than in the Spring, these conservation shrubs will bring a good return on your investment in terms of enjoyment in watching them develop, flower and fruit, and through their enhancement of wildlife values on the properties where they grow.

—ARTHUR HOLWEG,
Supervisor of Game Management

* *Our thanks to* Horticulture *magazine for paintings of the crabapples.*

Winter Birdlife in New York State

by Fritz Scheider

WITH the onset of Winter, most people resign themselves to long days of nasty weather and look with anticipation toward Spring. Yet to those interested in birdlife, this cold season is easily as exciting, colorful and stimulating as Spring itself. The dyed-in-the-wool birding addicts tramp the fields in blizzards looking for snow buntings and redpolls. They may stand on a waterside bluff staring into an eye-watering wind to catch a glimpse of a rare duck or gull that has come south with the boreal blasts. The homebody enjoys the sight of flashing feathers—blue, gray, red, brown, yellow—at the backyard feeding station. The novice birder finds the distinctively marked birds of Winter a welcome relief from the confusing collection of Fall warblers and sparrows that plagued him from August through November. The duck hunter, though cold to the marrow, tingles as a group of "whistlers" (American golden-eye) come slanting in. And the rabbit hunter thrills to a cock pheasant, glittering with color, as it flashes across the snows. Truly it is a season of sharp beauty, sharp temperatures, and sharp color.

Frequently people complain that they just don't see any birds in the Wintertime. Granted, Winter weather does not provide the best conditions for maximum species variety or the greatest number of individuals. Still Winter counts show some surprising figures. For example, the total variety of birds reported each year on the Audubon Christmas bird-counts taken in New York State ranges between 160 and 180 different species. Many species are represented from small or special areas; e.g., the Adirondacks or the south shore of Long Island, or by a handful of individuals, but about 100 species are typical Winter species over the greater portion of the State. The numbers of individuals of a species that you see may be very low such as a single pileated woodpecker or a lone snowy owl or they may reach such staggering figures as a flock of 10,000 canvasbacks or 4,000 snow buntings. So numerically or specieswise, Winter is not the birdless doldrums we think it to be.

Certain other aspects of Winter birding also make birdwatching at this season appealing. Most important is the readiness with which birds can be observed. The provender of a feeding station brings birds very close to you. A windowshelf feeder (see April-May, 1956 CONSERVATIONIST) may provide a situation where you can watch an evening grosbeak eat his breakfast as said grosbeak watches you eat yours. The tameness birds acquire from frequenting feeding stations makes them easy to observe and identify. And this tameness may entice the more daring into bird photography—but this is recommended only for the courageous, it can be frustrating. Further, certain northern species with us in Winter have had no previous contact with man. They, not being familiar with the strange biped that we are, usually allow a close approach, either ignoring or viewing humans as a natural part of the landscape. Crossbills and pine grosbeaks, for example, are so tame that at times they will hop onto shoes or shoulders for a thorough inspection of this new object, man. Also most Winter birds have solid colors or simple, obvious patterns, a factor aiding identification greatly. And to anyone who has practically fractured vertebrae trying to see a Summer warbler in a leafy elm, the ease of observation that leafless brush and open fields provides is practically paradise.

For those that insist on merely tolerating Winter and derive most of their pleasure from thoughts of the coming Spring, Winter birds can give the first signs of that season. The drake American golden-eye, resplendent in his black and white plumage, begins the wing-fluttering and head-bobbing of courtship in mid-January. How any bird, even a well-insulated duck, can muster even the faintest degree of passion in the temperatures of a New York January remains a mystery to me. The black-capped chickadee in early February switches from his excited, inquisitive "chick-a-dee-dee-dee" to the clear Spring song, "sweet-sweety." With warm days in February the woodpeckers commence their drumming. Horned larks take to flight singing, preparatory to setting up nesting territories and attracting mates. Just to confuse the issue, though, certain species commonly used as "first signs of Spring" are no more reliable than weather signs in a drought. Many people depend on the first robin as a Spingtime omen, yet in New York, robins regularly Winter in small numbers, and in some Winters in startling concentrations. This leads adventurous newspaper editors into predictions of an early Spring. Cardinals, in those areas of the State where they regularly breed, are sometimes used to judge the advance of Spring, but like the robin, this bird can be frankly deceiving. The cardinal, a non-migratory species, shows up at various feeding stations in mid-February. Many think this movement or population shift a true Spring migration. Actually it only represents cardinals seeking artificial food supplies because the natural ones are covered by snow or have been depleted by wandering flocks of other Winter birds.

Winter birdlife does not have the jumble and turnover of the Spring migration nor the confusion of plumages of the Fall passage. Winter birds and their movements are rather sharply determined by a few major factors, not transient weather conditions or migrational quirks or barriers. The greatest factor determining what species will be where is undoubtedly *food*. At this season, birds are not concerned with the problems of defending a territory for nesting, or of protecting fledglings, only with the concern of day-to-day feeding. Many birds will Winter in a very limited area if access to a consistent food supply and favorable

protective habitat are available. This food need and limitation permits operators at feeding stations to predict when certain regular "feeders" will appear. Prolonged observation of a feeding station will even show a morning arrival pattern for the various species; e.g., cardinal first, then chickadees and nuthatches, later blue jays. Single birds from species that normally do not Winter will attempt (and sometimes succeed) in Wintering-over near the food supply a feeding station offers. Correspondingly the absence of a normal food supply or difficulty in getting it will force regular Winter species out of an area. If weed seeds are scarce, snow buntings, tree sparrows, and juncos shift to more favorable feeding areas. If mice are few or hard to catch because of a deep blanket of snow, rough-legged hawks, sparrow hawks and marsh hawks move to sectors where easier mousing occurs. Conversely an abundance of mice such as happens in mouse population peaks can create local concentrations of the above "winter mousers." Some stretches of open water on the lakes and rivers attract no ducks; other areas of open water regularly draw thousands, often in a limited space. The difference rests primarily on accessible food in the preferred area.

Birds, like most creatures, prey on the most easily available food that they recognize as food. The rough-legged hawk changes from lemmings in the Arctic to mice in New York State; the evening grosbeak, from sugar maple seeds to those of the box elder. Many birds can find typical feeding conditions and acceptable foods early in the Winter. But some foods, especially such foods as berries, seeds, and marsh plants, become reduced through Winter consumption or unobtainable because of heavy snow or ice conditions. Then birds are forced to adapt to other food-getting techniques to survive. Thus black ducks, normally dabbling ducks, in Winter are seen diving for food. Pine grosbeaks switch from mountain ash to sumac, an emergency food, or to raisins at a feeding station. Robins, which Winter in the southern half of the State, sometimes Winter in excess of the available food supply of that sector. Under such trying conditions, they have been known to accept spaghetti at feeders.

Winter birds can be divided into roughly three main groups. Foremost of these are the birds that remain with us year round, the so-called *permanent residents.* Heading this list unquestionably are the ruffed grouse over most of the State and the bob-white in the Lower Hudson Valley and on Long Island, with the introduced ring-necked pheasant, in the better farm lands of the State running a close second. Other species of this group may, though with us throughout the year, vary greatly either in the total numbers or individuals present. Thus, black-capped chickadees and blue jays are considered permanent residents yet in certain years there may be very few of these birds; in other years, hundreds (1956-57 looks like an excellent "blue jay" Winter). Even in those species whose numbers appear to fluctuate very little, such as the white-breasted nuthatch, some individuals do migrate from Canada into the State, others leave the State for warmer climes, and a change in the individuals, but not the total number present, occurs.

A second group of "snow season" birds, the *regular Winter visitants,* do not breed or breed sparingly in the State but migrate into it to stay for the Winter. Examples of these species include the tree sparrow and snow bunting. Numbers of these birds, like the permanent residents, vary considerably from year to year, depending on local food conditions. Some Winters snow buntings abound with flocks of thousands roaming the windswept fields of the State while in other years only small flocks of 20 to a hundred can be found. Unlike the next group they are present every Winter.

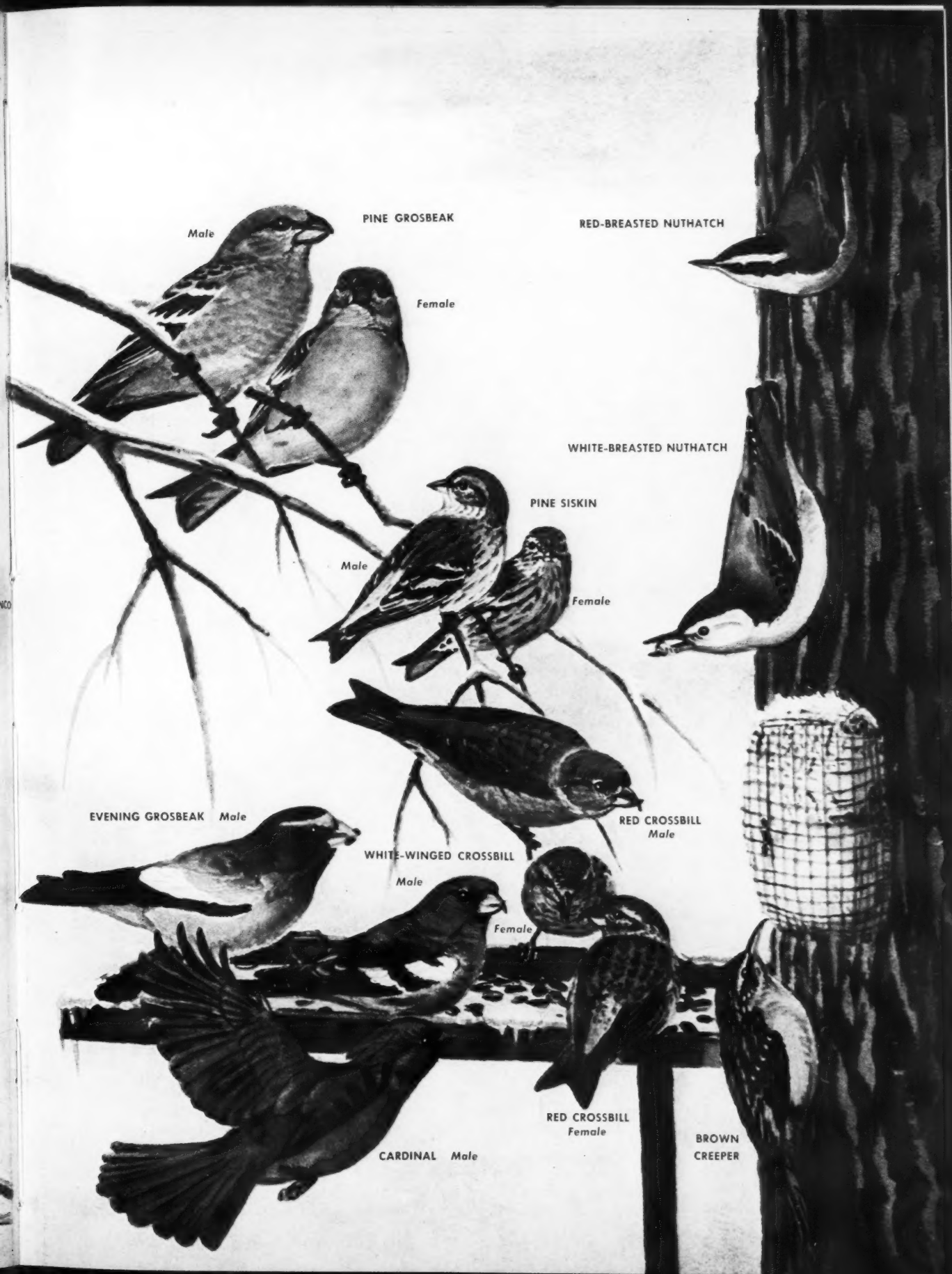
Most colorful and dramatic of all the Winter birds are those that may appear one Winter, then skip a series of Winters, only to arrive again in numbers in a subsequent Winter. This pattern of periodic appearance gives this group the name of *cyclic Winter visitants.* Each species has its own periodicity with a margin of error of a Winter or two. Snowy owls, for instance, have a four-year cycle; pine grosbeaks have a five- to six-year cycle while their relatives, the evening grosbeaks, have a two- or three-year cycle. Occasionally supposed cycle anomalies are reported. However, several explanations may be offered. A flight of a species such as the red crossbill, as an example, may occur in great numbers in one Winter in the eastern half of the State, yet be absent or scarce in the western half of the State. The next Winter this crossbill might invade western New York and be unrecorded in the eastern section. This situation probably is representative of two populations of the same species with the same cycle length but out of phase with each other. To confuse the picture further, some birds spill over from the areas of highest concentration into sectors surrounding the non-flight area. This spilling-over is especially true in the initial movement south in a flight year or on the return flight following an irruption an abrupt and tremendous increase in population of a cyclic species. These two factors along with the unpredictability of some individuals of a species would account for one or two reports of cyclic Winter visitants in non-flight years. Snowy owls are recorded every Winter in the State, usually one or two along the Great Lakes or on Long Island. However, only one Winter out of four, and predictably so, are they widespread. The whole picture of cyclic invasions is confused by a second poorly understood phenomenon known as the "echo flight." These "echo flights" usually appear in the Winter following an irruption of a cyclic species and cannot be correlated with invasions of other populations of the same species in different sections of the country. In such a flight, the number of individuals is much reduced, perhaps to 5 to 15 per cent of the previous Winter's numbers, but definitely higher than the typical "strictly-no-flight" period. The range of dates and geographical extent of the "echo flight" is almost always constricted. Northern shrikes and pine grosbeaks seem to have more echo flights than other cyclic Winter birds.

In some cases the periodicity of such bird flights has been correlated with regular fluctuations in a species' food supply. The snowy owl's cycle apparently depends, though not entirely, on the lemming population of the Arctic barrens. When these lemmings decline in numbers, as they do on a roughly four year basis, the snowy owls lack their basic food item and move south searching for food substitutes. This owl's relation to the lemming can be best demonstrated in New York by checking the areas where snowy owls are most frequently observed—dumps, weed fields, poorly harvested croplands, areas where the substitute food forms, mice and rats, are most abundant. Other cycles, particularly those of the cyclic Winter finches, remain a mystery though some flights have been predicted on known seed and cone-crop failures. Yet other flights come in periods of food abundance in the northland and certain species such as the two crossbills which have very similar food requirements may have cyclic patterns either in phase with each other or completely at variance.

In the species illustrated and described in the article, no attempt has been made to present a complete picture of New York Winter birds. Many owls and woodpeckers are permanent residents of the State but have been excluded purposely as material on them will appear in subsequent issues. Waterbirds, an important part of the Winter bird scene, have been ignored completely. The various species described only represent conspicuous members of each of the three major groups mentioned previously. In the descriptions the total length of the bird is given in inches; in those birds of prey considered, the wingspread has also been given in inches.

(*Continued on page* 26)

*Individuals may vary in coloration regardless of sex.


PINE GROSBEAK
Male
Female
RED-BREASTED NUTHATCH
WHITE-BREASTED NUTHATCH
PINE SISKIN
Male
Female
EVENING GROSBEAK Male
RED CROSSBILL
Male
WHITE-WINGED CROSSBILL
Male
Female
RED CROSSBILL
Female
CARDINAL Male
BROWN
CREEPER

(*Continued from page* 23)

Permanent Residents

Cardinal (*Richmondena cardinalis*) 8-9″. Though not present throughout the State, the cardinal, where resident, is a conspicuous bird. The rich red color, expressive crest, and loud song of the male make him especially noticeable and easily remembered. These birds come readily to nearby feeding stations and along with blue jays and evening grosbeaks add charm and color to any feeding set-up. The thick conical beak, designed for crushing open heavy seeds, is matched only by the similar beak of the evening grosbeak. Sometimes other Winter finches pick up the bits of seed remaining after the cardinal has crushed the seeds and fed.

White-Breasted Nuthatch (*Sitta carolinensis*) 5-6″. The nuthatches have a diet similar to the woodpeckers and feed in the same general situation. However, they do not "hitch up" a tree, using the tail as a prop, as a woodpecker or creeper does. Instead they cling to the rough bark by a two-toes-forward, two-toes-backward arrangement with no support from the tail which allows them to come down a tree headfirst. This action has won them the popular title of "topsy-turvy bird." They are drawn to feeding stations by abundant supplies of peanut butter, suet, and sunflower seeds; the last they may store in bark crevices for future reference. In late February and early March the male nuthatches begin their rather nasal singing.

Black-Capped Chickadee (*Parus atricapillus*) 4¾-5½″. This is the tamest and certainly the most inquisitive bird of the Winter woods. Any minor excitement and all major excitements in a woods will lure nearby chickadees to investigate. A person imitating an injured bird or small mammal by making squeaking distress notes can draw chickadees and kinglets near. These "distress notes" can be best made by vigorously kissing the back of your hand or saying the words, "spish, spish" through lightly clenched teeth repeatedly. Two or three minutes of this "spishing" can attract numerous small landbirds to within easy viewing range, so near that binoculars are unnecessary.

Blue Jay (*Cyanocitta cristata*) 11-12″. The long tail, bright blue color, and sharp crest mark this bird. The jay's varied calls help too, but his ability to imitate may be confusing. Usually the jay, like imitating starlings, will not persist in a single imitation but rather sing in a medley style. The jay responds well to "spishing" but will usually sneak up soundlessly, keeping well hidden or exposing only the light gray chest, as it moves close to the source of the sound. Blue jays are fond of corn and acorns and will store both in bark fissures or bury these foods in the ground where they are often forgotten.

Regular Winter Visitants

Slate-Colored Junco (*Junco hyemalis*) 6-6½″. Sparrow-size gray plumage, and flashing white tailfeathers are the chief features of this bird. A denizen of hedgerows and brushy areas, it often comes to feeding stations, using the backyard bushes and evergreens for daytime cover and night roosting. It breeds in the Adirondacks, Catskills and some of the cooler glens of central and southern New York. However, birds found in such areas in the Wintertime are probably migrants from further north. Juncos are often flushed from the mountain trails by Summer climbers and such people have opportunity to see the stubby-tailed young in the stunted, high-altitude balsam fir.

Tree Sparrow (*Spizella arborea*) 6-6½″. The "Winter chippy" is a slim, natty bird with a rusty cap and a black stickpin-like dot on its gray chest. Occupying the same habitat in Winter as the junco, it must consume through the Winter enormous quantities of weed seeds. The tinkling call notes are often the first sign of the birds' presence for they keep up a constant conversation as they flit and skulk through hedgerows and along brushlined country lanes. The "tree" part of the name is misleading because they are rarely seen where extensive forests occur. Woodland edges are usually the closest they get to the heavy timber areas.

Golden-Crowned Kinglet (*Regulus satrapa*) 3½-4″. A tiny mite of olive feathers, it is amazing that these small birds can find in the short hours of the Winter's day enough to tide them over the long night. Yet these birds, only an inch longer than the hummingbird, regularly Winter across the State though larger numbers do Winter to the south of us. The yellow crown patch, orange-dabbed in the male, distinctively marks this bird. It may be overlooked because of its preference for tall evergreens and its small size. However, like the chickadee, it can be "spished" quite near for observation.

Brown Creeper (*Certhia familiaris*) 5-5¼″. Like the junco, this bird breeds sparingly in certain sectors of the State, notably the Adirondacks. The bird's striped back pattern imitates the tree bark over which the bird creeps spiral-fashion looking for insect eggs and other food. At the first sign of danger, the creeper freezes against the bark, sure in the camouflaging powers of its coloration. A remarkably tame bird, it can sometimes be approached near enough to be photographed or captured by placing a hat over it. True to its affinity for tree bark, it places its nest under loose plates of bark on a dead or dying tree.

Red-Breasted Nuthatch (*Sitta canadensis*) 4¼-4¾″. Stubby-tailed, well marked, and as inquisitive as a chipmunk, the red-breasted nuthatch is perhaps one of the most engaging birds that comes to a feeding station. Groves of pine, fir, and spruce seem to attract them and an individual bird may stay in a small stand of such trees throughout the Winter provided it can find sufficient food to maintain it. The pinkish-rusty underparts that give the bird its name are often so faded that the bird appears to be just dirty. Also the white-breasted nuthatch may have a rusty wash on the flanks, leading some to misidentify that bird as the red-breasted. The best point then is the white eye-line of the red-breasted, a feature that the other nuthatch never has.

Horned Lark (*Eremophila alpestris*) 7-8.″ The sharp black face pattern, duller in females and immatures, coupled with the general brown color identifies this bird of bare ground. The horns, small black tufts of feathers, are rarely visible. Often a small flock will alight along a road to pick up grit for digestion of their Winter diet of weed seeds. The males may do a bit of Spring singing as early as the first week of February, and the birds may nest so early that the incubating bird is covered by a late March or early April snowstorm.

Rough-Legged Hawk (*Buteo lagopus*) Length 20-23½″; wingspread 48-54.″ Though a regular Winter visitant in the non-wooded areas of the State, the numbers of this mouse hawk change greatly, the variation following the ups and downs of the local mouse population. Deep snows also result in few birds showing up. The greatest share of hunting is done over open stretches; hence, the hawk is reported most frequently from agricultural and marsh areas. Hunting takes place mainly at dawn and dusk, the periods of activity of the mice. Plumage color ranges from that of the light-headed, black-bellied bird, the so-called "light phase," to a solid blackish brown one. Occasionally smoke-gray or chestnut-colored forms are seen. Because of its remarkable tameness, this hawk is readily approached and is often shot by thoughtless "targetshooters" and prejudiced hunters.

Snow Bunting (*Plectrophenax nivalis*) 6-7¼.″ Pastures, large, open fields and barren sandy areas attract these northern finches. Arriving about early November, they stay with us until March, often forming enormous flocks of two to eight thousand in late February, just prior to migrating north again. The striking flight pattern along with the swirling effect these flocks create has given them the popular name, "snowflake." The bright black and white

plumage of the male is best seen in early March, for in Fall a light brownish cast suffuses the body plumage. A large flock of these birds will sometimes strip a weedy field of the seeds in a day or two, then move on to other feeding grounds. This roving for food results in concentrations in some areas while other areas are devoid of the birds. Recently manured fields also attract them.

Pine Siskin (*Spinus pinus*) 4½-5". Though it frequents conifers, the siskin is also a bird of the birch and alder tangles. A flock may settle in one birch tree, busily strip it of seeds, then move on despite an abundance of food in the same area. Though numbers come south every Winter, the Fall arrival dates, Wintering pattern, and Spring departure dates are so erratic as to make every year unique. The siskin resembles the goldfinch in actions, song and call notes, but the streaked brown look is characteristic. A rising, buzzy note, "zree-ee-ee," is a helpful identifying point.

Cyclic Winter Visitants

Pine Grosbeak (*Pinicola enucleator*) 9-9¾." "Canadian robins" as they are commonly called visit us in numbers about every five to six Winters. The tendency of "echo flights" in this bird confuses the picture and some more northern sectors may have minor flights for two years following a major irruption. These birds feed heavily on buds and berries and will bite through frozen apples to reach the seeds, another favorite food. The two sexes can be identified from the illustrations. A color phase not pictured is that of the immature male which resembles the female but with rusty-orange instead of greenish-yellow head and rump. One can walk to within a few feet of these birds as they feed. They are fond of old orchards, edges of woods and evergreen plantings.

Evening Grosbeak (*Hesperiphona vespertina*) 7½-8½." These grosbeaks are second only to snowy owls in their outstanding cyclic flights they engage in. Strikingly marked and easily attracted to feeding stations, they arouse interest wherever they appear. Because of their fondness for sunflower seeds and consequent ease of trapping them with sets baited with this food, many have been trapped and banded for study purposes. Some banded birds are also marked with colored circles on the white wing patch. Each Winter that they appear, a concentrated study of the bird is initiated and to date thousands have been banded and smaller numbers have been marked. Evening grosbeaks feed largely on box elder as a Winter food; when such supplies are exhausted, they besiege feeding stations in hungry, aggressive flocks.

Northern (Gray) Shrike (*Lanius excubitor*) 9-10½." A lone, robin-sized Winter bird sitting motionless in a treetop is usually a shrike or a sparrow hawk. If a shrike, the gray color and the black and white wing pattern, the latter even more prominent in flight, will separate it from the rusty colored sparrow hawk. Winter food consists primarily of mice and small birds. Shrikes may become nuisances at feeding stations and may enter banding traps to catch the small birds inside. Immature birds are patterned like adults but are brown in color. In late February, the shrike may give snatches of its squeaky, catbird-like song.

Red Crossbill (*Loxia curvirostra*) 5¼-6½." Small brick-red birds with apparently deformed bills could be nothing but crossbills. The bill is not deformed but adapted for extracting seeds from the cones of spruce, fir, and pine. In the days before extensive lumbering operations, great quantities of mature cone-bearing trees were available with a corresponding abundance of crossbills. About every 3 or 4 years the cone-crop would fail severely and crossbills would invade in great numbers south of their normal range. Today flights still occur with the same periodicity but the numbers may be so scant as to go unnoticed unless a concentration of heavily laden conifers attracts and holds flocks of these birds.

White-Winged Crossbill (*Loxia leucoptera*) 6-6¾." Though much like the red crossbill, this species can be distinguished by the two characteristic white wingbars, a field mark present in all plumages. Both crossbills nest in small numbers in the higher Adirondacks. Crossbills seem fearless in the presence of man; Winter walkers or Adirondack Summer hikers may come upon the birds picking up grit on the trails or feeding parrot-fashion on cone-laden branches. They have a fondness for salt.

Redpoll (*Acanthus flammea*) 5-5½." These fat, sparrow-like birds feed mainly on birch and alder seeds. However, large flocks may resort to feeding in weedy fields, joining the regular snow buntings that also hunt such places. Many are killed by cars for they alight along roads to pick up grit for grinding up their seed diet. Feeding and flying flocks keep up a continuous cheerful, buzzy chatter, which, once learned, is a useful means of recognition. If disturbed, they swirl up in a compact mass only to settle down again within a few feet of their takeoff point. Both males and females have a bright red crown, the "poll," and black chins; only males have the bright rose-red chest.

Snowy Owl (*Nyctea scandiaca*) Length 20-26"; wingspread 54-66." Before legal protection was given to them, these owls were regularly shot as "harmful predators." Others were killed to be mounted for trophies and decorations. Since any creature will take the easiest prey available, whether or not the owl harms local game is contingent entirely on local conditions. In the majority of cases, mice and rats serve as food. Only where unnatural situations such as game farms exist can this bird do any appreciable damage and more often it is attracted by the abundant rodent population of such a place, only secondarily taking game birds. The large, heavily barred birds are usually females; the smaller, finely or scantily marked ones, males. Like the short-eared owl which also visits in Winter this bird is a daytime hunter.

Goshawk (*Accipiter gentilis atriacapillus*) Length 20-26"; wingspread 40-47." The goshawk, one of the three true hawks of eastern North America, comes south in numbers about every ten years. A few scattered reports of this species are received every year across the State; usually these few are immatures, prone to wandering. However, except for flight years this hawk is a distinct rarity in the State. The short, rounded wings and the long, ample tail give the bird great maneuverability in its favorite hunting terrain—woods and tall brush areas. Only rarely does it appear in the open, then only to quickly slip to another woods. Rabbits, small mammals, and birds are taken, yet seldom in excess of the reproductive rate of the prey species. Studies have shown grouse populations near nesting goshawks to be comparable to adjacent unoccupied areas. What birds they take, then, are never greater than what reproduction can supply. The periodic flights of the goshawk seem to follow changes in the numbers of grouse but the hawks themselves are not the cause of the ups and downs of the grouses' sedentary cycle.

Wintering Stragglers

Ruby-Crowned Kinglet (*Regulus calendula*) 3¾-4½." This bird represents a minor group of Winter birds—those that normally Winter considerably south of us but a few birds of which may remain in the State each Winter, particularly in mild Winters. In upstate New York, other birds of this group are the long-billed marsh-wren, hermit thrush, myrtle warbler, and brown thrasher. In southeastern New York and on Long Island such birds as the tree swallow, pine and palm warblers, and yellow-throat would be examples of this type. They do not contribute significantly to the over-all Wintering population but their deviation from the normal scheme of things adds interest and flavor to an already delightful season.

During the past three years, nearly 40,000 ducks have been banded on the Canadian breeding grounds. This program, set up to learn more about how the various waterfowl species that breed in the Far North distribute themselves during migration and the proportion of the birds that are harvested during the hunting season, was begun in 1954 under the sponsorship of the National Waterfowl Council. During this time, personnel from New York—one of the co-operating states—have banded more than 4,000 ducks at Oshawa and at Amherst Island in southern Ontario. In the accompanying article, the author relates some of his experiences during our first attempt under this program to band ducks in the Far North.—Editor

Duck Banding at James Bay

ON August 2d four members of a crew of waterfowl biologists participating in the co-operating banding program sponsored by the U. S. Fish and Wildlife Service, co-operating states and the Canadian Wildlife Service, left Charlton Island in James Bay, northern Ontario, for the Town of Moosonee—12 miles below the mouth of the Moose River at the southern end of James Bay. The crew, consisting of Alex Hunter of the Department of Lands and Forests at Moosonee, Howard Brown of the U. S. Fish and Wildlife Service, George Burdick, North Carolina State College and Willie Sutherland, Cree Indian assistant from Moosonee, were right on schedule—but only because of good fortune! The boat which was to have picked them up on this date had foundered off the west coast of the Bay. Just by chance another boat seeking shelter from a storm pulled into Charlton Island on the proper day and place. The captain agreed to take them aboard; otherwise this crew, almost out of food, would have been eating beaver abundant on the island, brook trout swarming in the ponds and streams, Arctic char from the Bay, or ducks and geese, 200 of which were now wearing bands as a result of the crew's activity on the island during the month of July.

While these men were chasing and banding ducks and geese in the flightless stage of their postnuptial molt and eating their grub supply dangerously low, I was traveling by train from the Finger Lakes region of New York to Moosonee where I was to meet them on August 3d.

With camping and survival gear supplied by the Conservation Department and my own clothing and equipment I arrived at Cochrane, Ontario, 186 miles south of Moosonee. The only way to travel quickly and easily from Cochrane Railroad, which runs as a single track through the "bush" following the Abitibi River much of the way; then parallels the Moose River to Moosonee.

At Moosonee, some hours behind schedule, the train was met by a fair portion of the population of the town. Train time is an event here. Alex Hunter, Brown and Burdick were on hand and we loaded my gear on a Ontario Department of Lands and Forests truck and drove down one of the few dirt roads of the town to the hotel. This consists of four well-constructed log cabins and a few shacks serving as sleeping quarters.

We remained in Moosonee for five days while making preparations for our trip up the west coast of the Bay and had the good fortune to spend a number of evenings with Andy Gagnon. Andy heads up the office of the Ontario Department of Lands and Forests at Moosonee and is responsible for a vast tract of land on the west shore of James Bay. He is an accomplished storyteller, a most entertaining and likeable fellow, and an enthusiastic game manager. Among other things, Andy is responsible for sealing or tagging furs brought in by the Indian trappers in his district and for keeping an eye on the various mammalian populations from mice to moose.

While in Moosonee we purchased our food and gasoline for the Coleman stove, lamps and outboard motors at the Hudson's Bay Store which is much like any other well-run and equipped general store. The Ontario Department of Lands and Forests supplied the heavier equipment, the two freight canoes and two outboard motors of 10 and 15 H.P.

Late in the afternoon of the 7th, we loaded the canoes with 1,500 pounds of bait corn, the tents, a wood stove, a couple hundred pounds of grub, and all personal equipment for our departure on the outgoing tide early the next morning. The canoes were 21 and 23 feet in length, wide abeam, with a chopped-off stern for outboard mounting. Alex, who has used these canoes often on the River and Bay, pointed out that while these were the best small craft available for use on open water, they were too lightly constructed in view of the very likely possibility of running aground on the reefs and shoals common along both shores of James Bay.

The sled dogs were howling in the area of scattered Indian shacks when Alex woke us at 3:30 o'clock in the morning of the 8th and by 4 o'clock we were headed for the mouth of the Moose River and Piskwamish Point about 30 miles up the west shore from the Moose. We went aground only once at the mouth of the River and from that point our journey was smooth. On the River were many shore birds both in species and numbers and in the Bay we encountered a few black ducks, herring and Bonaparte's gulls, Arctic terns and white whales. From a mile out in the Bay, the shore line is an unbroken black line of trees with few obvious landmarks. But to Alex Hunter, who has traveled this shore for a

Coffee break enroute to base camp at Piskwamish Point, James Bay

good many of his 62 years, every reef, point and boulder is familiar. Alex has been known to travel the coast at night and come in at Piskwamish when there were absolutely no distinguishing features. I asked him how he did it. His inadequate explanation was that he could tell by the "feel" of the bottom.

We came into Piskwamish Point at low tide 6½ hours after leaving Moosonee and stood out from shore about ¼ mile while we awaited the incoming tide to drift our canoes in closer. We set up camp, two sleeping tents and a cook tent on a sandy ridge covered with strawberries, beach pea and wild rye grass. Our camp overlooked the Bay to the east and a very large meadow to the west which paralleled the shore line for miles. Further to the west is another old beach covered with black spruce. For many miles inland these old beaches are evident and between are marshy meadows of willow, dogwood, sedges and grasses.

We located and positioned in the shallow meadow pools five turkey wire traps left at Piskwamish after the banding operations of the previous year, using the conventional circular form, narrow funnel entrance and netted top. The meadow is not a breeding ground for either ducks or geese which utilize the more adequate cover of the bush to the west, but serves as a feeding ground for thousands of migrating blue and Canada geese, black, mallard, pintail, and teal ducks. We found one brood of greenwing teal which was rather quickly whittled down by predators to three ducklings when we last saw them. There was little cover from either birds of prey or terrestrial predators. The most common aerial predator was the marsh hawk. Numbers of them were constantly working the beach and meadow from daylight to dusk. We observed Richardson's owl, shorteared owls, pigeon hawks, the goshawk and on the ground, a wolf, skunks and the tracks of mink, fox and bear.

On the 20th of August, twelve days after setting up and baiting our traps, we banded our first ducks: Five blacks and three pintails. We had been catching and banding nothing but shore birds until that time. Yellowlegs, both lesser and greater. Wilson's snipe, least, semipalmated, western, and white-rumped sandpipers, and a sanderling had all followed our corn into the traps. On one occasion we found the bodies of seven sandpipers, apparently the work of a northern shrike, the butcher, for most of them had been decapitated.

There were few ducks in the area when we arrived, but increasingly greater numbers appeared in the weeks that followed. The greatest deterrent to trapping numbers of ducks was the amount of natural food available. The shallow meadow pools where they congregated contained an abundance of aquatic vegetation on which the ducks fed. Nevertheless, by September 3d the day of our departure, we had banded 160 black ducks, mallards, pintails and greenwing teal. More than half of the banded birds were pintails, somewhat less than half were blacks and mallards. While there were some sizeable flocks of teal which frequently fed near our traps all but three managed to keep out of them. From what Alex had observed of the goose and duck broods and the vegetation on Charlton Island he estimated that our season was perhaps three weeks late. This estimate, shared by the Indians with whom Alex spoke, was later reinforced by the relatively small numbers of ducks present and the time of arrival of the first flocks of blue and Canada geese at Piskwamish Point.

All the comforts of home in the Far North

The meadow at Piskwamish has for many years been a favorite blue goose hunting ground of the Cree Indians who travel the coast between Moosonee and the Albany or Attawapiskat rivers. There were many old blinds of willow boughs and the remains of temporary decoys in the meadow. These decoys are simply and effectively constructed by driving a stake into the ground at an angle, packing mud on the stake and shaping this into the form of the body of a goose and placing a carved head and neck on the body.

Howard Brown and I, when not checking the duck traps, tended our gill net in which we took delicious, two-pound white fish and an occasional cisco and tullibee. We set up mist nets on the beach and ridge near camp and banded shore birds and savannah and infrequent-Lincoln's sparrows entangled in the nearly invisible mesh. In less than a week we banded nearly 200 savannah sparrows. The first netted of these sparrows was one banded two years previously in almost exactly the same location by John Buckalew of the U. S. Fish and Wildlife Service. These activities, plus my mouse and shrew trapping kept us occupied.

On the 3d of September we broke camp at Piskwamish and headed for home. Our trip down the Bay was a memorable one, for we ran into rough weather and on the Moose River about 8 miles from Moosonee a wind of nearly gale force blew in from the south, tossing our heavily laden canoes precariously. Water broke continuously over the gunwales from bow to stern and flying spray soaked and blinded us. We made port all right, though, thanks to good navigation by Alex and some industrious bailing by all hands.

The 360 ducks and geese banded during July and August in the James Bay area may seem a poor return for the time and expense involved, especially in view of the fact that we not infrequently band that many diving ducks in five days in the Finger Lakes and on Lake Erie. However, if gunners in the United States and in southern Canada are as faithful about turning in bands as are the Cree Indians in the North we may well learn more exactly the source of the waterfowl shot in New York State. Since every banded bird is a potential source of information, our 360 banded waterfowl should add effectively to the 4,000 or so birds banded in the North.

The Canadian and U. S. waterfowl program is indeed a co-operative effort. The personnel of the Ontario Department of Lands and Forests from District Forester Ted Hall in Cochrane to Larry Ruel, an apprentice in Andy Gagnon's office in Moosonee, were the finest, most co-operative and sincerely interested group of men with whom one could hope to work.

—Dick Ryan

Conservation Library

Part 5
Books on Lichens, Mosses and Ferns

Part 1 of the Conservation Library appeared in the February-March 1956 issue and dealt with the identification of animals. Part 2 in the April-May issue listed books on trees and shrubs. Part 3 in the June-July issue listed books on herbs (wild flowers) and grasses. Part 4 in the August-September issue listed books on fungi and aquatic plants.

In future issues reference guides will appear on soils, minerals, resource management, and conservation philosophy.

Reading Guide: *Books are listed in the left-hand column and recommending authorities across the top. Stars indicate which specific books these authorities recommend. Accompanying digests show source and briefly outline contents of each book listed.*

Books on Lichens

The Lichen Book: (1947) by G. G. Nearing; published by author, P.O. Box 338, Ridgewood, N. J. A good popular handbook of the lichens of the Northeastern United States. Illustrated with line drawings. Artificial keys are cross referenced and easy to use.

Mosses and Lichens: (1907) by Nina L. Marshall; Doubleday, Page and Co., N. Y. (out of print; see in libraries). A good popular guide, illustrated with line drawings and colored photographs. Good descriptions; bibliography.

The Lichen Flora of the United States: (1935) by Bruce Fink; University of Michigan Press, Ann Arbor, Mich. Technical book illustrated with line drawings and black and white photographs. Glossary, keys, and descriptions help in identification of lichens.

Books on Mosses

Mosses With a Hand Lens: (1947) 4th Edition, by Abel J. Grout; published by author, 1 Vine Street, New Brighton, Staten Island, N. Y. Popular, beginners' book, well-illustrated with photographs and line drawings.

How to Know the Mosses: (1944) by Henry S. Conard; H. E. Jaques, Mt. Pleasant, Iowa. Simple keys illustrated with line drawings, descriptions and good introduction make this a good field book for beginner.

Mosses and Lichens: (1907) by Nina L. Marshall; (see description under lichens).

How to Know the Mosses: (1951) by Elizabeth M. Dunham; Mosher Press, Boston. Popular book with short descriptions and drawings of characteristics of mosses in Northeastern United States apparent without aid of hand lens. Good introduction and appendix.

Books on Lichens

	*Ogden	*S. Smith
THE LICHEN BOOK *G. G. Nearing*	☆	☆
MOSSES AND LICHENS *N. L. Marshall*	☆	☆
THE LICHEN FLORA OF THE UNITED STATES *B. Fink*	☆	☆

Books on Ferns

	*Ogden	*S. Smith
GUIDE TO EASTERN FERNS ED. 2 *E. T. Wherry*	☆	☆
FERNS IN THE VICINITY OF NEW YORK *J. K. Small*	☆	☆
FIELD BOOK OF COMMON FERNS *H. Durand*	☆	
FERN ALLIES OF NORTH AMERICA NORTH OF MEXICO ED. 2 *W. N. Clute*		☆
OUR FERNS; THEIR HAUNTS, HABITS, AND FOLKLORE ED. 2 *W. N. Clute*		☆
GRAYS MANUAL OF BOTANY 8th ED. *M. L. Fernald*		☆
THE NEW BRITTON & BROWN ILLUSTRATED FLORA OF N.E.U.S. AND ADJACENT CANADA *H. A. Gleason*		☆

*DR. EUGENE C. OGDEN, State Botanist, N. Y. S. Museum, Albany.
*DR. STANLEY SMITH, Curator of Botany, N. Y. S. Museum, Albany.

Books on Mosses

	*Ogden	*S. Smith
MOSSES WITH A HAND LENS *A. J. Grout*	☆	☆
HOW TO KNOW THE MOSSES *H. S. Conard*	☆	☆
MOSSES AND LICHENS *N. L. Marshall*	☆	☆
HOW TO KNOW THE MOSSES *E. M. Dunham*	☆	☆
PLANT FAMILIES; HOW TO KNOW THEM *H. E. Jaques*	☆	
SPHAGNALES NORTH AMERICAN FLORA 15(1) *A. L. Andrews*		☆
BRITISH MOSSES AND LIVERWORTS *E. V. Watson*		☆
HEPATICAE OF NORTH AMERICA *T. C. Frye and L. Clark*		☆
MOSS FLORA OF NORTH AMERICA NORTH OF MEXICO *A. J. Grout*		☆
MOSSES WITH HAND-LENS AND MICROSCOPE *A. J. Grout*		☆
THE ECOLOGY AND DISTRIBUTION OF HEPATICAE IN CENTRAL AND WESTERN NEW YORK *R. M. Schuster*		☆

Plant Families—How to know them: (1941) by Harry Edwin Jaques: Wm. C. Brown Co., Dubuque, Iowa. Key for beginners illustrated with simple line drawings. Easy to use.

Sphagnales. North American Flora: (1913), 15(1) by Albert LeRoy Andrews; N. Y. Botanical Garden, New York City. Technical but only complete book on sphagnums or peat mosses. Some illustrations.

British Mosses and Liverworts: (1955) by Eric V. Watson; Cambridge University Press. Most of species dealt with occur in N. Y. S. Good descriptions; illustrated with line drawings and black and white photographs. Separate field key insert.

Hepaticae of North America: (1937-1947) 2 vols. by Theodore Frye and Lois Clark; University of Washington, Seattle, Washington. A good but technical book; bibliography.

Mosses With Hand Lens and Microscope: (1903-1910) by Abel J. Grout; Mt. Pleasant Press, Harrisburg, Pa. Semi-technical; illustrated with line drawings. Good glossary and bibliography.

Moss Flora of North America North of Mexico: (1940), 3 vols. by Abel Grout; published by author at Newfane, Vt. Technical coverage of subject. Illustrated with line drawings and black and white photographs. List of references.

The Ecology and Distribution of Hepaticae in Central and Western New York: (1949) R. M. Schuster; Vol. 49, No. 3, American Midland Naturalist. Although published in a journal, the treatment of the subject is so complete and applies so specifically to N. Y. State that it merits listing. Good descriptions, references, and line drawings.

Books on Ferns

Guide to Eastern Ferns, edition 2: (1942) by Edgar T. Wherry; the Science Press Printing Company, Lancaster, Pa. Popular descriptions with line drawings for identification.

Ferns in the Vicinity of New York: (1935) by John K. Small; The Science Press Printing Company, Lancaster, Pa. Popular book describing and illustrating with line drawings the common fern species within a 100 mile radius of Manhattan.

Field Book of Common Ferns: (1949) by Herbert Durand; G. P. Putnam's Sons, New York. Fifty common species of ferns found in Eastern North America described and illustrated with line drawings and photographs. Bibliography and tips on cultivation.

The Fern Allies of North America North of Mexico, edition 2: (1928) by Willard N. Clute; W. N. Clute Company. Interesting discussions on ferns including folklore. Some descriptive material illustrated with drawings, some in color.

Our Ferns: Their Haunts, Habits and Folklore: (1938), edition 2, by Willard N. Clute; Frederick A. Stokes Co. This book is similar to the one listed above.

Gray's Manual of Botany: (1950) Eighth (Centennial) Edition. A Handbook of the Flowering Plants and Ferns of the Central and Northeastern U. S. and Adjacent Canada. Merritt L. Fernald, American Book Company, New York. For more than a hundred years and through its eight editions this has been the standard reference work on flora of northeast. More than 1,500 pages, a few line drawings of critical parts of some species. Good glossary of terms.

The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada: 3 vols. (1952) New York Botanical Garden, New York, N. Y. Good reference for amateur and professional. Black and white line drawings help beginniner in use of keys. Good introduction.

Caroga Lake

Location

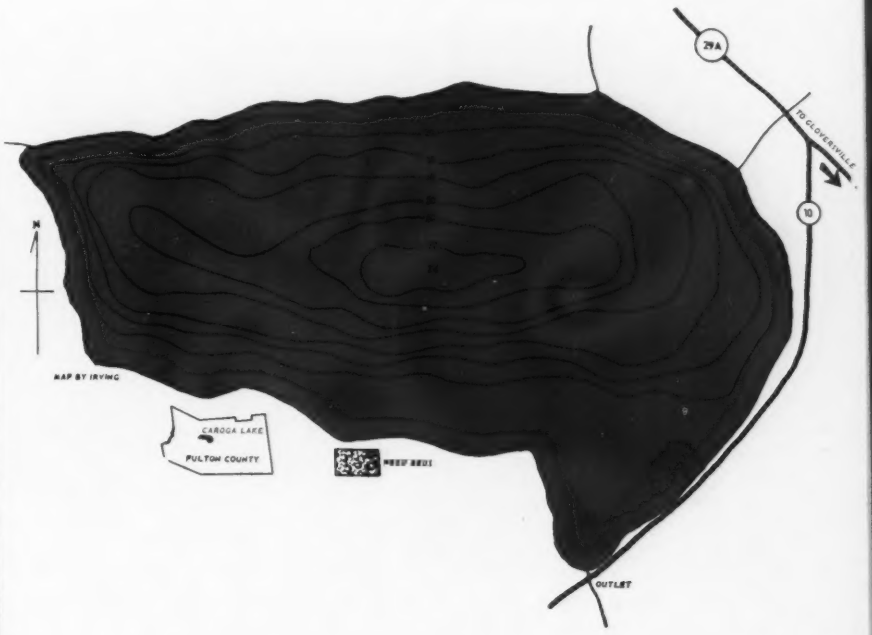
Fulton County, off Route 10, 6 miles northwest of Gloversville

Physical Features

Area: 275 acres
Elevation: 1,450 feet
Maximum Depth: 74 feet
Length: 1.0 mile
Width: 0.7 mile

Water Characteristics

Oxygen: Adequate for fish life at all depths
pH: Slightly alkaline at surface to slightly acidic at bottom
Transparency: Good
Temperature: Deep water in summer, 43°-44° F



Fish Present

Walleyed pike, whitefish, sunfish, yellow perch, bullhead, pickerel, rock bass, smallmouth bass, suckers, various minnows. Experimental plantings of red salmon have been made in recent years

General

Boats and accommodations available locally
Hunting in Vicinity
Deer, grouse, varying hare, cottontails, squirrels
Trapping in Vicinity
Beaver, fisher, otter, mink, muskrat, raccoon

—Wm. Shepherd,
Aquatic Biologist

the back of the book

New York's big eight trees

New York with eight is among the 41 states and the District of Columbia with one or more species champions of the 324 that have been crowned as the result of the 1956 revised report on "Big Tree Champions," the fourth revision since The American Forestry Association inaugurated the contest in 1940 to halt the tragic disappearance of America's most magnificent tree specimens.

In the contest, size alone is the determining factor. AFA's formula is based on three key points—circumference (diameter breast high), height and crown spread.

New York's champion eight, giving species, circumference at 4½ feet, height, spread, location and nominator:

Ailanthus, Tree of Heaven, *Ailanthus altissima*, 18′ 8″, 80′, 75′, Head of the Harbor, Long Island; George H. Peters, Freeport.

Magnolia, Umbrella, *Magnolia tripetala*, 4′ 9″, 40′, 25′, Elmont; George H. Peters.

Maple, Red, *Acer rubrum*, 20′ 8½″, 60′, 50′, Bard College, Annandale; Fred W. Oettinger, Poughkeepsie.

Oak, Black, *Quercus velutina*, 19′ 9″, 90′, 138′, Lloyd's Neck, Long Island; Mrs. E. M. Thyvaert, San Juan, P. R.

Oak, Northern Red, *Quercus borealis*, 24′ 9″, 60′, —, Thorndale, Millbrook; H. F. Hedgecock, Poughkeepsie.

Poplar, Southern P., *Populus deltoides missouriensis*, 21′ 7″, 124′, 115′, near Geneva, O. E. Files, Toledo, Ohio.

Serviceberry, Shadblow, *Amelanchier canadensis*, 7′ 3″, 54′, 40′, near Ithaca, P. F. Allan, Ithaca.

Willow, Brittle, *Salix fragilis*, 18′ 7″, 80′, 70′, Old Westbury, Long Island; George H. Peters.

American Forests, magazine of The American Forestry Association, 919 17th Street, N. W. Washington 6, D. C., has reprints of the "Report on American Big Trees." AFA also has instructions on how to measure a tree. Failure to follow the basic rules may have cost ten or more entries a championship in the latest competition, so it is suggested that future applicants make sure that they report all three dimensions called for.—ROLAND B. MILLER

Strange things are happening

Out in western New York this year the unusual appears to be the order of the day. To support this claim, Bob Perry, District Game Manager in that area, presents two cases in point:

Case No. 1—A letter from Mel. Thompson, Lockport, reporting on finding a hen pheasant incubating a clutch of 11 eggs on September 4. The nest was located under a piece of road reinforcement steel alongside a heavily traveled highway west of Lockport. The hen was still on the nest on September 12 but by the 15th she had brought off her brood—a 100 per cent hatch—of 11 chicks.

Commenting on this, Perry says: "I have heard of a few pheasant nests in the process of incubation in early September, but I never heard of one before that actually hatched. In most cases of such late incubation, the eggs have dead germs for some reason."

Case No. 2—A fox squirrel; this one shot by Perry's son Ted, while hunting near the Village of Lima in northern Livingston County. This species of squirrel is rarely heard of in New York, except for a small area in the southwest corner of the State where it has been established for some time. Perry believes this specimen was at least 100 miles outside its known range in the State.

Free show

It's now around to that time of year again, roughly, October through December, when our trout hatcheries are really living up to their names and doing some honest-to-goodness hatching. The procedure itself is not too impressive—the eggs just lay in their trays or boxes for about two months until the embryos feel they have enough fins, etc. to pop out and have a look around.

Some of the trout hatch out with a few more fixtures than they can conveniently use such as a second complete body or maybe another head. The above illustration of brown trout fry will demonstrate what is meant. These Siamese twins, two-headed individuals, or otherwise malformed fish are far from rarities, with brook trout probably producing more freaks than other species. With a little patience and very careful observations, you can usually spot a few of these monstrosities in any trout hatchery shortly after the eggs hatch and before the yolk is totally absorbed.

In case you're wondering why you haven't caught any trout with two heads (they should be a cinch) it's because they just don't grow up. Even by isolating these queer individuals and carefully feeding them, they rarely attain the lengths of a scant inch before they die. —NEIL EHLINGER

Now hear this

According to U. S. Fish and Wildlife Scientific Fisheries Report No. 179, special sonic devices may yield detailed information on individual fish behavior. A miniature underwater sonic tag is attached to an adult salmon and the movements of the fish are observed on calibrated sonic receiving equipment. The position of the fish can be pin-pointed, and movements plotted for periods of time up to 100 hours. The equipment can be used in varied hydraulic conditions and in fresh or salt water to track the movements of adult fish and other aquatic animals. Author of this challenging report is Parker S. Trefethen, fishery research biologist.

Our cover this issue was painted last Winter—a woodland scene on the Frank Sommer farm near Chatham in Columbia County. The artist had never seen deer there, only their tracks. But he put them in the picture anyway. This Fall, victim of his own propaganda, he went back and within a quarter mile of where he had painted the cover, he brought down this buck with one arrow. Anyone else want deer painted in their landscape?

New fish pathologist

Richard I. Stevens

Richard I. Stevens of Madison, Wisc., bacteriologist and fish pathologist with the Wisconsin Conservation Department, 1952-56, is New York's new fish pathologist, stationed at the State Conservation Department's fish hatchery at Rome.

The newly-appointed Bureau of Fish employee attended the public schools and Phillips Academy, Andover, Mass. and graduated from Brown University (biology) and the University of Wisconsin (bacteriology). He is married and has two daughters. He was a navigator in the U. S. Air Force from 1943-45. Mr. Stevens succeeds the late Dr. Louis Wolff at the Rome hatchery.

Old Tom

For the thirteenth time in sixteen years a muskalonge bearing tag number 3552 in its dorsal fin was netted by Conservation Department employees in Chautauqua Lake this year. On May third, "Old Tom," as his friends in the netting crew labeled him, returned to the pound net in Whitney Bay, was stripped of his contribution to this year's muskie propagation efforts, and carefully returned to the freedom which he has so long enjoyed.

"Old Tom" was first caught, and tagged, on April 23, 1941 at Prendergast Point. He was not seen in '42, but turned up at the Whitney Bay net (about ½ mile from Prendergast) in 1943. Since then he has returned to the Whitney Bay net each year, except 1950.

Perhaps the most startling thing about this fish is his growth in the sixteen years. In 1941, at tagging, "Tom" was 31¼ inches long. By 1956 he had grown (?) to almost 31¾ inches. This scant half inch in sixteen years is not too surprising, however, since "Tom" is a male and male muskalonge grow very little after reaching sexual maturity. He was mature in 1941 and probably six or seven years old. Adding sixteen years since tagging to his six or seven pre-tag years makes "Tom" quite an ancient fish.

It is quite natural to wonder how this fish has escaped fishermen for so long. He has been a legal fish thirteen or more years (from 1941 thru 1946 a 32"-size limit would have protected him). Perhaps he's extra smart, extra lucky, or maybe the rate of utilization of some of our fish populations is lower than we might guess. "Old Tom," perhaps shrewdly, has picked a good spot for his home as Whitney Bay is so heavily weeded that angling is drastically limited most of the fishing season.

We all hope "Old Tom" has many more years of life, but will be anxious to hear from any angler capturing tag No. 3552 in Chautauqua Lake. He looked like he was on the downhill side of life this Spring, so hurry if you want to hang up this record.

Boomerang

Roger Heim, a French naturalist, in a recent bulletin of the International Union for the Protection of Nature comes up with yet another example of how man outsmarted himself by importation of an exotic species of wildlife: "On the Macquarie Islands, rabbits, introduced with the intention of improving food resources, soon began to destroy the crops. Then man turned his mind as how best to repair this blunder. To combat the rabbit, he released the cat, the rabbit's natural enemy. The cat did indeed eat the rabbit, and for the time being, this method had some success. But, once all the rabbits had been disposed of, the cats attacked the seabirds whose eggs the natives greatly prized. Once again man intervened—to counteract the cat, he released the dog. But it had never struck him that the dog would rather attack the seal, which supplemented the local man's food resources. And so a very difficult situation arose. On the Macquarie Islands attempts are being made to destroy the dog that man introduced to destroy the cat, that man introduced to destroy the rabbit, that man introduced for his own benefit."

U. S. Fish and Wildlife Service reorganized

On July 27 the 84th Congress passed the Fisheries and Wildlife Act of 1956 which will probably be known as the Bonner-Magnuson Act.

Briefly, the Act creates an Assistant Secretary of the Interior for Fish and Wildlife which elevated the former Fish and Wildlife Service to sub-cabinet status. It provides for a single administrative chief, called Commissioner, who is directly responsible to the Assistant Secretary. Under this Commissioner the Service is reorganized into a Bureau of Sport Fisheries and Wildlife and a Bureau of Commercial Fisheries, each with its own Director.

The Act also extends the Saltonstall-Kennedy Act providing for increased use of fishery import taxes for commercial fishery research, education and promotion. It sets up a 10 million dollar revolving loan fund to provide 10-year loans to help keep the commercial fishing fleet in good operating condition and provides for representation by Fish and Wildlife in International Treaty negotiations.

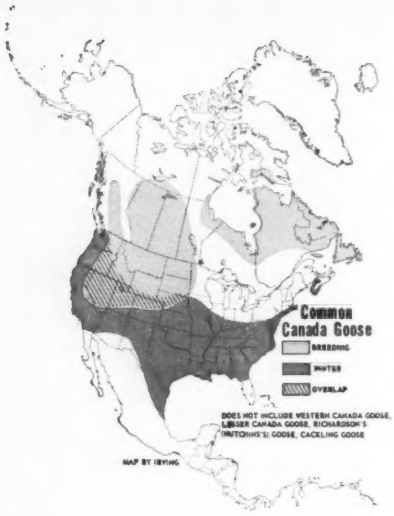
Ed. note: President Eisenhower signed the Bonner-Magnuson bill reorganizing the Fish and Wildlife Service on August 8.

Foxes

The result of an eight-year study by Michigan biologists, this 48-page booklet on the red fox is crammed full of easy informative reading and ingenious illustrations. For anyone interested in foxes—fact or fancy—its reading is recommended.

Based on factual data, it discusses the fox from all angles including such controversial subjects as fox diets, the fox and the pheasant, the fox and the farmer, and the age old bounty system.

Authored by David A. Arnold and illustrated by Oscar Warbach, the booklet is available upon request from the Michigan Department of Conservation, Lansing, Mich.



Canada goose

On the front cover of the October-November CONSERVATIONIST *we presented a painting of Canada Geese by artist Wayne Trimm. We followed this theme up with center spread paintings by Trimm, part of which were devoted to the primary waterfowl species of New York, and by accompanying life history notes, management work and species range maps prepared by Don Foley, waterfowl biologist for the Department.*

A comparable piece was written for the Canada goose but, unfortunately, that old demon "space" didn't permit its use. So, here it is—lest we be accused of neglecting that most magnificent waterfowl of all:

Probably no other waterfowl stirs the pulse so deeply as the wild goose. Whether migrating north or south, their waving, V-shaped skeins high in the sky and the musical *honks* floating down before they come into view and after they are out of sight provoke wonder, awe and more than a little envy in all of us.

In mid-April, when the breeding birds return from their wintering grounds to the shores of Hudson and James bays, the Indians rejoice at this sure sign of Spring, and at the even more immediate prospect of fresh meat.

Two subspecies of the common Canada goose are found migrating through New York. One, the North Atlantic race (*Branta canadensis canadensis*), breeds in Newfoundland, the eastern two-thirds of Quebec and in Labrador, migrating through this State chiefly along the Atlantic Coast and down the Champlain-Hudson Valley to Winter along the coast southward to North Carolina. The other subspecies, (*Branta canadensis interior*), comes down through western New York from both the east and west sides of Hudson and James bays on their way to the coast from New Jersey southward and through the interior of the southeastern states to the Mississippi Valley. Both of these races are very much alike except that the eastern is somewhat lighter on the sides and back and may average a trifle heavier. Weights for either may run between 7 and 14 pounds, with the young birds and females most often in "poor" flesh.

There are other races or so-called subspecies of the common Canada goose westward through North America, but we do not see them here. A third "Canada" goose of New York, seen only occasionally, is the much smaller edition known as Richardson's or Hutchins' goose. It averages only about three to six pounds.

In contrast to the ducks which change partners every year, geese mate for life, although if one of a pair is killed the other may eventually mate again. Few geese breed as yearlings, and not all even as two-year-olds. This long non-productive period makes the goose somewhat of a problem to the game manager and research man alike. To start a new breeding colony may require at least three years if only goslings are available. Also, to accurately assess a breeding season or any hunting differential we come up against the problem of adequately aging the birds. We are trying to solve some of these problems now.

The common Canada goose lays from 4 to 10 eggs (usually 5 or 6) and generally is much more successful in rearing its young than are the ducks. This is due largely to the better behavior demanded of the goslings and the more vigilant protection provided by the parents.

Geese usually establish very definite feeding times while flocked from September to April, and the most successful hunters are those who study the flights to and from the feeding grounds. In New York, Winter wheat, rye, corn and soybean fields are most often favored. The geese, however, are with us too short a time for much real crop depredation to occur. A study in Virginia actually showed better grain yields from the fields more heavily used by geese, probably due to the extra fertilization.

A few other interesting facts concerning geese are: (1) They seem to follow the 35° isotherm northward in Spring, and arrive on the breeding grounds 10 to 20 days before "ice-out"; (2) their single flights on migration average between 250 and 500 miles, with fairly long rests between; (3) one old gander does not always lead the flight at the head of the "V," rather, they share these wind-breaking duties; and (4) the national average for shells expended per goose brought to bag is nine, which tells a story in itself.

"Home Sweet Home"

Steve Fordham, foreman of the Department's Game Farm at Delmar, thinks, perhaps, he is taking too good care of the pheasants. They don't want to leave.

As evidence he cites the case of hen pheasant No. 6-35405. Hatched out at Delmar on May 29 this Spring, it was transferred that same day to the Schenectady County Sportsmen's Federation brooders at Bevis Hill Reservior. It was later given a band with the above noted number and on July 31 it was released with other birds reared by the sportsmen's group in Schenectady County.

Where this pheasant spent the ensuing two months is not recorded, but on September 27 when birds were being trapped-up at the Delmar farm for shipment to distribution points, there was No. 6-35405 right back at the home stand.

Fordham notes, in conclusion, that the shortest distance between the Delmar Game Farm and Schenectady County is 10 miles.

Grouse on skewer

This grouse had at least one strike against it before it was bagged near Plattsburgh, by Stacey Robeson, Game Research Investigator for the Department. We can only theorize that during one of its bomb-shell flights it caromed into the stub which passed completely through the bird and then broke.

Although the bird's flight and general condition appeared normal and the oddity wasn't noticed until the bird was shot, examination indicated that the accident had occurred some time prior to the time it was killed. The stick had missed the body cavity itself and there was no sign of irritation or infection. How long it would have survived in this condition is anyone's guess.

Pigeon net

In THE CONSERVATIONIST for April-May, 1953, Nick Drahos described the manner in which early New Yorkers rigged nets to trap passenger pigeons on baited grounds. Such a net recently came to light in an attic in Turin (New York), and, thanks to Randolf Kerr, Forest Ranger of Glenfield, has been turned over to the Department. In his letter to us, Kerr says:

"Enclosed find a handmade linen pigeon net over 100 years old. This net has been donated to the Department by Mr. Ernest Markham, Turin, New York.

"The flax to manufacture this net was grown locally; the stalks were allowed to rot after being cut and then the fibers were hetcheled (combed) and woven into linen thread on a flax wheel. It was then woven into the fine linen cord seen in this net. The net is very clean and bright considering it has been stored in an attic nearly a 100 years.

"Mrs. Markham tells me her Grandmother can remember flocks of passenger pigeons passing overhead that would darken the sun. It was common practice in those days to catch these birds, dress them out and pickle them in barrels for Winter meat."

1956 Wildlife planting

This Spring, under the wildlife habitat improvement program, a total of 1,446,815 shrubs was distributed throughout the State for wildlife plantings. These shrubs, raised at the Department nursery at Painted Post, were handled through the offices of the nine District Game Managers. Multiflora rose was the most popular species with 992,000 being shipped. Tartarian honeysuckle, coralberry, highbush cranberry and Autumn olive accounted for 334,200 and the balance was made up of miscellaneous species.

Of these, 142,780—together with 36,970 conifer seedlings, were made up and shipped as "sportsmen's bundles." In addition, 177,350 conifer seedlings were distributed for wildlife "clump planting."

This year tree planting service under the program was confined to the East Central and Catskill Game Management districts where a total of 151,000 conifers was planted in small blocks. This year marks the last year that assistance is planned for this "block" type of planting.

The wildlife habitat improvement program, commonly referred to as P-R Project 48-D, has been carried on since 1948 and, in addition to the tree and shrub planting practices, has included the development of wildlife marshes and the fencing of wildlife areas.

(See Oliver Hewitt's article, this issue, for an analysis of progress made under this program in wildlife habitat improvement.)

The "Goose" flies high

During the Fall distribution of trout to public waters, the State airplane, "The Goose," again played an important part. In the month of September, 136 ponds and lakes in remote Adirondack areas were stocked with 299,420 trout weighing 4,092 pounds. The Hamilton County Board of Supervisors also furnished a 'plane for stocking waters in that county and 82 ponds were stocked with 179,900 trout weighing 2,672 pounds. The total number of trout finding their way into these 218 inaccessible waters via air was 479,320, weighing 6,764 pounds.

These waters were stocked by air in a total of eight flying days. Contrasting this with the pack-can method of stocking remote ponds, it would have required 1,690 man-trips. Assuming in some cases that more than one pond could be stocked in a day by man power it would have required an estimated 1,000-man days to complete the Adirondack pond stocking.—K. B. NICHOLS

Conservation discussion guide available

"Concepts of Conservation," a new publication prepared by The Conservation Foundation, is intended for discussion groups interested in the natural resources of the nation, the Wildlife Management Institute reports.

The text of the 48-page booklet highlights the meaning and significance of resources and conservation, and comments specifically on the problems and aspects of soil, water, forest, and wildlife management. Discussion topics and a reading list are presented with each section and in addition there is appended a general reading list, a listing of 16 mm. educational filmstrips and other films. Copies are available at 25 cents each from the Foundation, Box 1812, Grand Central Station, New York, New York, with bulk orders of 50 copies supplied at $10.00.

Sold out

As of September 1, 1956 our nursery inventory indicated a total of 30,224,000 2- and 3-year-old forest tree seedlings available for planting in New York State during the Fall of '56 and the Spring of '57. Of these, 4,354,000 are slated for State Forests and 133,000 for wildlife plantings by the Division of Fish and Game. The balance is expected to be shipped to individuals for planting on private lands.

As of this writing, the supply of Scotch pine, larch, balsam fir, Douglas fir and white cedar is completely on order and by the time you read this, the entire inventory will be exhausted.

Last year (1955) we were sold out before Christmas; this year we'll be out of saleable nursery stock by Election Day.

Since trees are sold on a first-come—first-served basis, and only through your District Forester, you should keep in touch with him for future plans.

Forest fertilization

From Rutgers University comes word that an experimental application of a complete fertilizer to forest trees has been made from the air at Beemerville, N. J. The experiment was conducted using a crop-dusting Stearman airplane to apply a standard 12-12-12 agricultural fertilizer. An 11-acre stand of 28-year-old red pine was treated in an attempt to improve the growth of the trees presently growing slowly because of a low fertility soil. Measurements are planned after each growing season to determine response to the fertilizer.

If successful, large scale aerial applications could lead to more abundant and cheaper wood for pulp and paper industries. As the plant foods increase the growth of tree and other ground cover there will be an improvement and conservation of forest soils and it is anticipated that food and cover for wildlife will be increased. Aerial fertilization may also play a major role in the future management of farm woodlots. Forest owners and conservationists should watch these Beemerville forest fertilization experiments with interest.

Birds and the cyclometer

To the Tower operators at the Albany airport, the night of September 17, 1956 was just another rainy night in the middle of a cool wet month. But in the sodden field to the west of the airport, death waited. There, from the top of a five-foot cement monument, an unmoving finger of light probed the sky, lighting the bottom of the low-scudding clouds. At the airport an instrument focused on the beam of light automatically recorded the changes in visibility.

The night of the 17th was dark with clouds of a high warm mass of air sliding up and over a mass of cool air blanketing the stars. That afternoon further to the North, thousands of birds responding to the driving force of migration had taken wing and were moving southward through the rain filled blackness. At first the late afternoon light had aided them in their flight but as their feathers became wet and the shadows rose out of the valleys they flew lower and lower, calling to each other in the darkness. With the lights of the City of Albany sparkling ahead their calls mingled with the roar of airplane motors. Suddenly, between the clouds, blinding light hit them. As if hypnotized, some turned into it, and flying down the beam of the cyclometer, they crashed against the lens.

That same night, Guy Bartlett of Schenectady awoke to the sound of rain and calling birds. Knowing something about weather and the birds' behavior, he rose early the next morning and drove to the airport. There, scattered about the base of the cyclometer, were nearly 200 dead birds representing 25 species.

Although this kill was high it is more common than many might imagine. As man reaches higher into the air for messages of pictures and sound, for living space and navigation aids more birds will die each year.

But the birds that died at the Albany airport the night of September 17th, did not perish in vain. First of all, the birds were turned over to Dr. Allen Benton of Albany State College for Teachers. After making identification, and measurements he contacted the State Museum and the Conservation Department. Photographs were taken of the birds by Conservation Department personnel and the Museum selected the specimens they needed in their collection. The remaining ones, and there was much duplication of some species, were used by State College for study and some prepared for their collection.

But the problem of buildings and lights and their lethal effect on migrating birds remains. It is one that is worldwide and is receiving serious study by many people. When it comes to a choice between the safety for human navigation, as in the case of lighthouses or airport beacons, and the lives of a few million birds, the human safety will receive priority. However, already some of the problems have been licked and I am sure that with human ingenuity at work the remaining ones will be solved.

Here's an interesting postscript to this cyclometer kill. Since that night there have been others with similar weather conditions that should have produced kills. Visits to the area however, either showed no birds or just some wings and feathers. This was puzzling until the investigator arrived one morning earlier than usual and discovered a sleek cat making a meal on the victims of the light. That is one cat that likes the rain.

Dr. Benton and November kill

The species and numbers of birds killed provided an interesting indication of mid-September migrants this year. They were as follows: Bay-breasted warbler—50, yellow-throat—15, Magnolia warbler—25, red-eyed vireo—10, ovenbird —14, olive-backed thrush—9, Tennessee warbler—9, black-throated green warbler —8, black burnian warbler—6, chestnut-sided warbler—5, redstart—5, Canada warbler—4, black-throated blue warbler—4, Wilson's warbler—4, black and white warbler—4, least flycatcher—3, red-breasted grosbeck—2, yellow-bellied flycatcher—1, northern water thrush—1, parula warbler—1, blackpoll warbler—1, scarlet tanager—1, veery—1, Cape May warbler—1, yellow-throated vireo—1. —H. WAYNE TRIMM

Conservation Education and Boy Scouts

This year the first conservation education program specifically designed for Explorer Scouts was held at the Tuckahoe Public Hunting and Fishing Grounds, Tuckahoe, New Jersey. Explorer Scout representatives from the 24 Scout Councils in New Jersey were selected to attend on the basis of their interest and accomplishment in conservation.

Under the guidance of professional fish and game biologists, the Scouts, in small groups, worked on such projects as duck nest counts, cover mapping and fish and waterfowl management. One day of the Scouts' two-week training period was spent deep sea fishing and observing commercial fishermen in operation. In addition, each Explorer received instruction in hunting safety, rifle and trap shooting, bait casting and field archery.

The program is designed to provide interesting outdoor activities for a picked group of older boys. At the same time it gives them a chance to see first hand some of the work of the biologists so that they may decide whether such work interests them as future professions. Finally, it is hoped that the Explorers will bring the story back to other Scouts and adult groups.

This program is all to the good, but while we are on the subject of Boy Scouts let's consider another angle. One of our biggest conservation education problems is how to put to productive work in the field the millions of willing "boy hours" available through the Boy Scouts of America. Every year the New York Conservation Department is approached by Scout leaders asking us to recommend projects their boys can actually do with their hands in the field for conservation. Aside from building bird houses, nesting boxes and a few similar projects (all of which are worthwhile, though of a minor nature) the sad truth is that we cannot suggest much of anything in the way of a major conservation project that a Troop or Council can actually undertake. Why? Because unless

the Scout organization owns its own property or some of the boys live on farms they have no place to actually work on the land—where conservation begins.

When one considers the miles of small streams that can be improved by simple structures, the thousands of acres to be planted to trees, the plantations and woodlots in public and private ownership that need thinning, pruning and other improvement work—to mention only a few major projects—it is frustrating not to be able to recommend such projects to the Boy Scouts.

The bottleneck appears to be a question of liability in case of accident or personal injury and a lack of adequate technical supervision. Most property owners would think twice before permitting a group of boys equipped with saws and axes to invade their plantations or woodlands without adequate technical supervision—even if liability were not a problem. And the same holds true for any project that might result in personal injury.

The problem is a large and an important one, worthy of serious consideration. We will welcome suggested solutions.

Senior citizens

Kids' fishing derbies you know about. Mobs of grinning "tads" jammed around the shores of village and city ponds, 'midst a bristling array of cane poles, fortified by gallons of soda pop and staggering quantities of hot dogs, all happily hauling out pumpkin-seeds and perch stocked by the Conservation Department in co-operation with local sponsoring civic groups.

But what about the old folk? The fun in fishing never dies but the opportunity for oldsters to go fishing is apt to be as infrequent as for the kids on the city streets. Pondering this situation, two civic groups in Westchester County, the Junior League of Mount Kisco and the Sportsmen's Club of Northern Westchester, came up three years ago with a joint inspiration—a fishing derby for the "Senior Citizens."

This year was the third in the Seniors' derby series and on August 8, forty-one contestants, ages 65 to 89, were gathered up by bus and deposited on the shores of New York City's Cross River Reservoir near Katonah.

The Sportsmen's Club and Junior League members were on hand with rigged poles, bait, picnic fixin's and prizes for the biggest fish and the most fish taken. No one seemed the least bit disturbed by the fact that the trophies awarded were considerably larger than the fish caught by the winning contestants.

Tree planting—then and now

Recently a Forest Practice Act cooperator in Fulton County provided one of our foresters with a set of figures representative of reforestation costs 40 years ago.

In 1916, white pine transplants 4 years old cost him $4 per thousand trees, 3-year-old red pine transplants cost $3.50 per thousand. Today, transplants are not produced at the Conservation Department tree nurseries but 3-year-old seedlings are available to private landowners for reforestation purposes at a cost of $3.50 per thousand. Not much difference here within the last 40 years but this does not mean to imply that tree production costs have not increased. To encourage the reforestation of private lands, tree seedlings are sold by the Department at prices far below the costs of production.

Now let's take a look at the cost of getting these trees in the ground. In 1916 the men in the planting crew were paid $2 each per day. The foreman received $4 per day for which he also threw in the services of one horse. The bill for planting 10,000 trees in May, 1916 came to $37.20 or $3.72 per thousand, just about the same as the cost of the planting stock. Today most contractors charge on an average of $18 to $20 per thousand for planting. At this rate the bill for planting 10,000 trees comes to about $200—almost six times the cost of the trees.

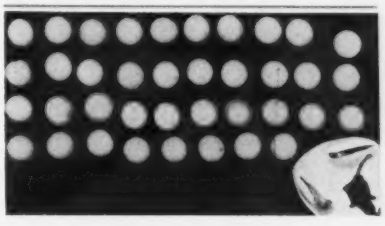
To make us feel even worse we have also been informed that the first 20 acres of land on which these trees were planted in 1916 cost a total of $89. This man purchased the land, bought the trees and paid to have them planted for a little more than half what it would cost to only plant the same number of trees today. But tree planting, properly done, is good conservation and a good investment in the future even at today's prices.

While on the subject this is an opportune time to attempt to clarify a few points about which there apparently is a great deal of confusion and misinformation. Most of this seems to center around who can get trees and for what purposes, the kinds of trees available and how to get them.

The N.Y.S. Conservation Department operates two forest tree nurseries—one at Saratoga and one at Lowville. These nurseries are designed to mass produce coniferous (pine, spruce, larch) tree seedlings from 2 to 4 years of age. With the exception of black locust, hardwood (maple, birch, oak, etc.) seedlings are not raised. By law, these seedlings can be supplied to private landowners *only for reforestation purposes. They cannot legally be furnished for ornamental or landscape plantings.*

When shipped from the nurseries the trees are only a few inches high depending upon species and age and are not root pruned. They have been raised to be planted in large blocks or windbreaks in open fields by machine, mattock or other planting tool. For such purposes they can be sold to private landowners f.o.b. at the nurseries, usually at $2 to $3.50 per thousand depending on age. They can be furnished without cost to municipalities, public service organizations, 4-H members, vocational-agriculture students, and co-operators under the Forest Practice Act provided they are to be planted for reforestation purposes. Applications for trees are accepted only on official tree order forms supplied by the Department and issued through the District Forester in whose district the trees are to be planted. No orders for units of less than 1,000 trees can be accepted.

To obtain the address of your District Forester write to the Conservation Department, Albany, giving the name of the county in which the trees are to be planted.



Snapping turtle eggs

Pictured here are some of the 46 snapping turtle eggs found near Albany's Six Mile Waterworks by Mrs. Harry DeMine. Incubation was well along as evidenced by the baby turtle removed from one of the eggs.

This species lays its eggs in loose soil or sand close to the water's edge; depends upon the warmth of the sun for incubation. As soon as the young break out of the white, leathery shells, they dig to the surface and head for water—providing predators such as raccoons or opossums don't find the nest first.

Spare Me One Swamp

Ho! ye ditchers, ye drainers, go ye slow
Till I walk once more where the slough-creeks go,
And steal to the place where bladder-worts grow
Softly out there on oozy old edges of swales.

Just wait till I dash through the rim of trees
And the rank raw weeds and beyond the breeze,
To lily-quags reach, and then half to my knees
Plunge and plow the black puddles where the marsh-stench hales.

Hold! preserve one spot where no furrow turns
Where no garbage rots and no smoke-stack burns
And no sign-board gapes, where no tramp sojourns
When hounded and outcast from the primp city pales.

Spare me yet one swamp where the marshhen breeds
One deep old morass where the mink-brood feeds,
One sweep of great bog where the cat-tail seeds
Are shorn and snatched from their heads by the winter gales.

Reserve me one mire where the mud gives birth
Of things that guard and strike, where fen-vines girth
And slime-pools stem, where the old savage earth
Contests me, defies me when I push 'long the trails.

—Liberty Hyde Bailey

Ducks down the drain

Secretary of Agriculture Ezra Taft Benson has been informed by a group of prominent conservationists that federally subsidized drainage in three north-central states is having a disastrous effect on waterfowl resources, according to the Wildlife Management Institute.

In Minnesota and North and South Dakota, which along with eastern Montana, are the nation's greatest waterfowl producing states, the group said 32,000 potholes were drained last year. More than a million acres of prime waterfowl nesting habitat have been destroyed by drainage during the past 10 years. Many additional millions of acres of potholes and natural marsh areas have been drained and much has been lost by way of habitat for aquatic furbearers, other wildlife, and in surface and soil water supplies.

Those who met with Benson were Dr. Ira N. Gabrielson, president of the Wildlife Management Institute; Ernest Swift, executive director, and Charles H. Callison, conservation director, of the National Wildlife Federation; Dr. J. H. Shaeffer, chairman of the North and South Dakota Emergency Conservation Committee; James W. Kimball, director of the Minnesota Fish and Game Commission; H. R. Morgan, director of the North Dakota Fish and Game Department; Bernard A. Nelson, assistant director of the South Dakota Department of Game, Fish, and Parks; and Dr. Clarence Cottam, director of the Welder Wildlife Foundation.

"The Department of Agriculture appears to be preaching one philosophy and practicing another," Benson was told. "The Soil Bank program purports to be building up the national reserve of soil and water resources while the Agricultural Conservation Program continues to subsidize farmers for drainage which brings additional crop land into production, reduces natural water suplies, and destroys wildlife habitat."

Attention waterfowlers

As an aid to waterfowl hunters and to help foster their co-operation with the agencies which are charged with waterfowl management, a 56-page waterfowl identification guide for New York State has been prepared by the Atlantic Waterfowl Council. It contains black and white illustrations for each important species of Atlantic flyway waterfowl and includes many tips for faster and easier recognition. It is 5″ x 8″ in size, is designed to fit into the hunting coat pocket and should be an asset to gunners who are not sure of their waterfowl species.

The guide is available upon request, free of charge, from the offices of the District Game Managers and from the Conservation Department, Albany.

P-R co-ordinators' meeting at De Bruce

The first meeting of Pittman-Robertson co-ordinators from eleven Northeastern states was held during September 25-27 at the Department's De Bruce boys' conservation camp. Representatives came from Maine, New York, New Hampshire, New Jersey, Massachusetts, Rhode Island, Pennsylvania, Connecticut, Vermont, Delaware, West Virginia and from the Fish and Wildlife Service offices at Boston, Mass. and Washington, D. C.

Among the topics discussed were land acquisition, job and salary standards, co-operative agreements with other agencies, contracts, P-R manual changes, wetland engineering problems, publication of research data, maintenance of leased or gift lands and Soil Bank aid.

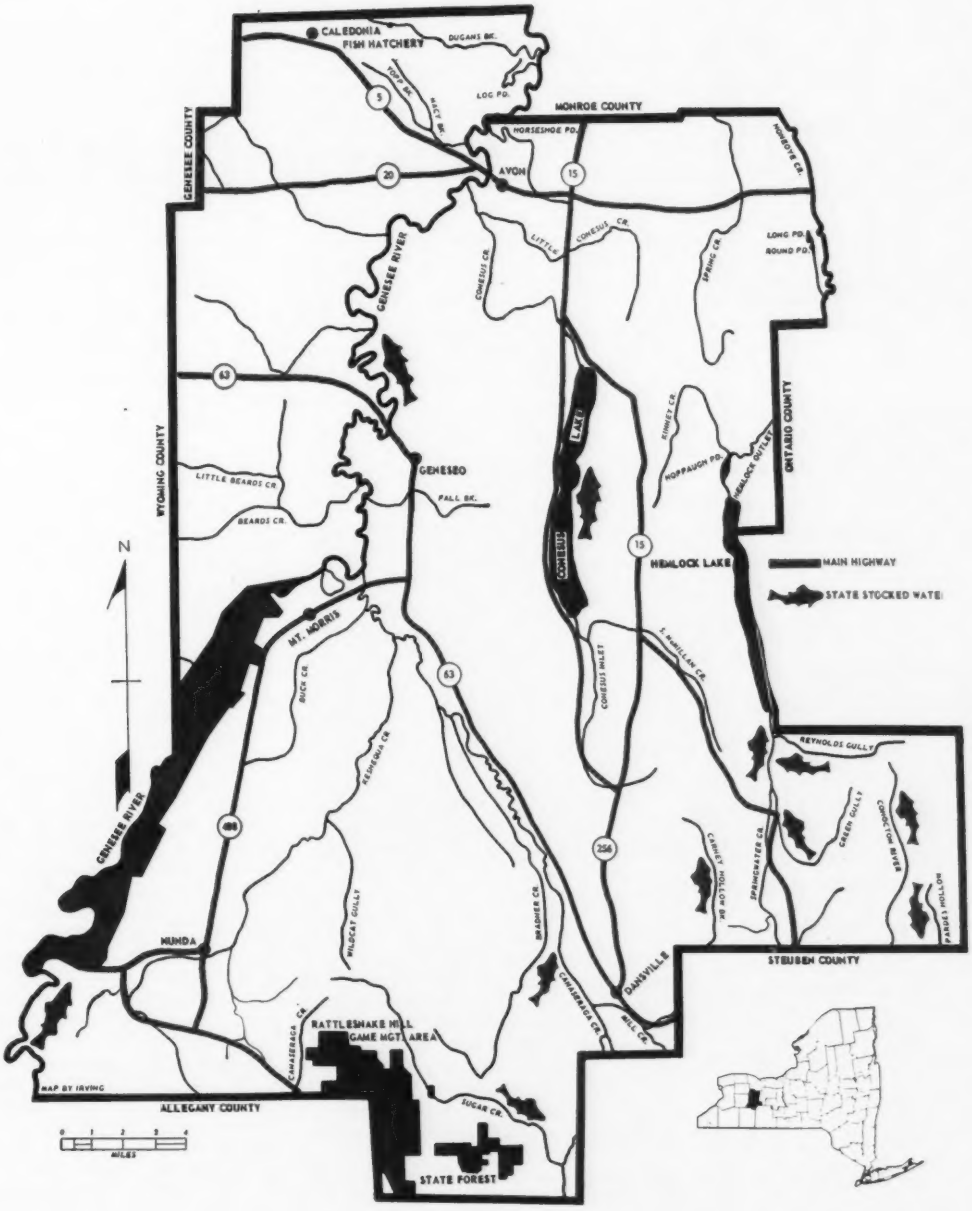
So successful was the meeting that another is planned for next year.

Stovepipes for woodies

Sportsmen of the Watertown, Lorraine, Cape Vincent and Henderson clubs (all affiliates of the Jefferson County Sportsmen's Federation) rallied to a late Spring request for help by John E. Wilson of the Department's Ontario-St. Lawrence Game Management District.

Additional wood duck nesting boxes were needed for erection on small marsh sites, Wilson reported, and the sportsmen built and made available nearly 50 for that purpose. Approximately half of the boxes were of the newly developed metal type designed by waterfowl research personnel in Illinois. These houses are, for all purposes, predator proof, offering little opportunity for mammalian predators to enter into the nest opening. The units are made from sheet metal stovepipe sections with conical metal tops attached, are much more durable than the universally used wooden type boxes, and require little or no maintenance.

Livingston County



N.Y.S. Conservation Department Offices

District Forester	5 E. Steuben St., Bath
District Game Manager	2130 Scottsville Rd., Scottsville
District Fisheries Manager	2130 Scottsville Rd., Scottsville
District Game Protector	2130 Scottsville Rd., Scottsville

Farm Service Offices

Livingston Co. Soil Conservation District	158 Main St., Mt. Morris
Livingston Co. Agricultural Agent	158 Main St., Mt. Morris

—Roy Irving

Letters to The Editor

About fish, fishing and camping

Gentlemen: 1. I was fishing at Crane Pond near Schroon Lake and we got one nice bass. We stayed there several days in early September and didn't get anything else. One of the local townsfolk told us that the Conservation Department had netted out all the bass that they could and we were lucky to get one. Is this true? Did you take keepers out or just the small ones? This used to be a good bass lake but it sure has changed—or else we just hit a bad time.

2. I belong to a club which has a small pond near Conklingville Dam and the fishing is very bad despite stocking it with trout. It is full of small fish of all kinds and we are draining it and are going to kill off all the fish and restock. We are going to put trout back in but I think we should study the situation and see if some other fish wouldn't do better and keep the minnow population down. Is it the policy of the Department to give assistance to such a club insofar as looking the place over and recommending proper stocking?

3. In THE CONSERVATIONIST are maps showing State-stocked streams but many are not on State land. Can anyone fish these streams and if so how do you go about finding legal access?

4. On Page 10-11 of the April-May 1952 issue of THE CONSERVATIONIST is a map showing streams for fly fishing only. Do these streams still have fly fishing only and if so, has this policy been expanded?

5. Do you have a new policy regarding tent platforms? Last year I wrote and expressed my desire to see Middle Saranac remain free of the multiude of disreputable looking shacks that line the shores of the other Saranacs. You said that at that time you were formulating a new policy and I am curious as to what this policy is.

In closing, I would like to compliment the Conservation Department for the wonderful job it is doing in preserving our Forest Preserve and in trying to please everyone as nearly as possible. However, my favorite subject is these ulcers that appear on our lake shorelines and go under the name of "temporary tent platforms." They look like slums and if you had the gall to ask to use one the occupants would laugh at you. Most of them are used the entire season by the same people and are about as temporary as the Brooklyn Bridge. It is a sticky problem and I have no suggestions other than to burn all of the damned things down.

One last plea. It seems that every time I find a nice lake which is hard to get to but is good fishing and anyone who goes there has to be a true sportsman or he wouldn't be there, you either decide to make it a public campsite or fix the road (if there is one) or put up big signs. There are a few remaining people of the species which like outdoor beauty, quiet, good fishing and are willing to canoe and portage a lot or hike a good distance to find it and I am one of them. But leave us some land —we are getting pushed back. These pseudo-sportsmen who have to have stoves, lanterns, iceboxes, garbage collection, and milk delivery are on the increase and will need facilities but don't ravage the fine out-of-the-way spots. They wouldn't really appreciate them anyway.

Thanks for reading this and keep up your good work.

H. C. Ward, Jr., Schenectady

• *With regard to the Crane Pond situation, some years ago this pond was investigated by personnel of our Adirondack Fisheries District and it was found that the bass population was over-crowded and stunted in growth. In order to relieve that condition and to improve growth conditions for the population of bass generally there, salvage netting of bass has been carried on at this pond for the past five years, including 1956. This was a thinning operation and all bass taken were kept and removed to Schroon Lake and Paradox Lake for stocking purposes there. This included a few bass over 10 inches but these were a very small percentage of the entire catch. In general we find that these operations increase the productivity of such waters by making a considerably larger percentage of the game fish population available to the angler. Not many bass were taken this year and it is doubtful that the netting will be carried on in 1957.*

With regard to your club pond which you propose to drain and restock, our policy with regard to a field investigation and consultation would be largely dependent upon whether the pond is open to public fishing. Considering the pressure of work of this kind on waters open to the public, it is necessary for us to limit such operations on private waters rather severely. I am referring this inquiry to the District Fisheries Manager for your area, however, and it may be that he already has information with regard to this pond which will be helpful to you. I would suggest further that if you would present your problem to him, giving size and depth of the pond, its water supply, fish species present and other details pertinent to judging suitability for trout or other species, our men would be glad to advise you on that basis. The District Fisheries Manager for your area is Mr. A. C. Petty, 21 Lackawanna Avenue, Norwich.

Concerning streams open to public fishing, all unposted waters are considered open as well as State-owned waters. In fact, the mileage of waters stocked on privately-owned lands considerably exceeds the mileage of State-owned lands.

As to access to such privately-owned waters, you doubtless are familiar with the fact that a great many streams parallel public roads and are accessible. If access depends on using a farmer's lane or otherwise traversing private property, it is usu-

ally necessary, if only in common courtesy, to request permission for such access from the landowner.

Finally, with regard to fly fishing only streams, four of those shown in the 1952 CONSERVATIONIST *were under the same classification during the 1956 season. Due to local opposition to this type of management, however, it has been necessary to discontinue the Wiscoy as a fly fishing only stream. No definite decision as yet has been made as to fly fishing only streams for the 1957 season. It seems probable, however, that the same four open on that basis in 1956 will be carried on under this management during 1957. Information will be forthcoming in this connection through the press and of course the streams will be posted for fly fishing only in case this program is renewed for the 1957 season.—C. W. Greene, Chief, Bureau of Fish*

• I am sure you will be glad to learn that the Department is granting no further permanent tent platform permits for locations on Middle Saranac Lake and that it is our intention to eliminate the existing ones on that body of water if, as, and when the opportunity offers.

The Department has also adopted new plans and specifications for these structures, and I am sending copies of them to you under separate cover. All permits issued for some time now have been granted on the condition that the structures erected conform to these plans and specifications. Further, it is required that only standard wall tents be used on permanent tent platforms. Persons having permits for such structures prior to the adoption of these standards have been given five years in which to make their platforms conform with the standards. We feel that these new policies will go a long way toward eliminating the unsightly structures which you refer to.

I note what you say about maintaining the wilder areas of the Forest Preserve in their natural state, and I know that everyone in the Department sympathizes with that viewpoint. I know of no instance where the development of public campsites has encroached on such areas. Neither have any forest fire control truck trails been developed in recent years which penetrate regions of that kind. As you probably know, the latter are barred to vehicular traffic and are used by vehicles only in the Department's work of suppressing forest fires, planting fish, etc.—W. D. Mulholland, Superintendent, Camps & Trails

To *unhook* a fish

Dear Sir: Would you be able to answer some questions about trout? Some of my friends tell me that to release a trout which is undersized I should cut off the snell leaving the hook in the trout and that the hook will rust away without harm to the fish. Others say remove the hook using wet hands. Which is best?

Donald Roehm, Binghamton

• The principal sources of injury in unhooking fish, in the opinion of most observers, seem to be too much pressure on vital organs during the handling and tearing of vital tissues by removal of hook. The theory that use of dry hands or gloves is fatal (by removing protective slime from fish) is pretty well exploded. Strange as it may seem, hooks left in fish often rust away without causing injury or infection.

Based on experience and opinions expressed by others the best advice I can give is: (1) Never squeeze a fish hard. Some pressure can be put on tail region or fish can be picked up by lower jaw but the gill region or body cavity region are easily injured. (2) If a hook cannot be easily *dislodged cut the snell close to the hook, with scissors or with knife sharp enough to avoid a strong pull on the hook. (3) Liberate the fish where it can be observed if possible as an exhausted fish may die if not given time to recover. If fish is in distress try moving it gently to force water through gills or support it with head upstream in moderate current.—John R. Greeley, Chief aquatic biologist*

Burls

Dear Editor: I noticed while at camp in Cattaraugus County a large maple tree. It measures about 8 feet in circumference. The odd thing about this tree is that it has a funny kind of growth on it. It has a wart-like protrusion from its trunk and limbs. My Father thought it might be the kind of growth which produces the birds-eye maple. I would appreciate any help you could give me on this tree.

Floyd R. Draper, Lewiston

• We can only assume from your description, "wart-like protrusions," that the growths may be what are commonly called "burls" and sometimes referred to as plant tumors.

They do not have anything to do with the abnormal growth of wood tissue in some individual hard maple trees which causes the unusual pattern of "birds-eye" grain when cut by the saw. The wood in the vicinity of these burls is cross-grained, distorted and weak.—Editor

Hold your horses!

Dear Sir: I am sending you . . . a picture of the steam tractor that was used to haul iron ore from Tahawus the Winter of 1914.

The only identification of the crew that I could get was the Engineer (man in cab). He is Duke Austin of Long Lake who has passed on.

These tractors burned soft coal and at night one could see sparks fly skyward 50 feet or more. Three to four heavy sleighs were drawn by these tractors at a speed of 6 to 7 miles an hour, and the haul (or draw) was from 75 to 100 tons of ore in chunks just as it was taken from the mine.

James J. O'Keefe, North Creek

Dear Sir: In regard to your inquiry . . . in reference to log hauling locomotives, these machines were without a doubt steam traction engines used originally for hauling iron ore from the McIntyre Iron Mines to the rail head at North Creek. The old McIntyre Mines have since been taken over by National Lead Co.

The original traction engines were similar to the ones . . . described in your letter. They were soft coal burning, steam powered tractors with sled runners, hauling about 50 to 70 tons of iron ore. Operated about the year 1914. . . . There were four of these in operation on the run between here and the mines. All the roads had to be iced by water carriers and as near as I can find out they only operated in Winter. Each train of ore with engine carried a man to steer, one man as an engineer and I think a brakeman and in some cases an extra man was along to jump off and hold any shy approaching horses or teams of horses that might take a notion to run away. Service roundhouse for these engines was at North Creek.

C. Wm. Sullivan, North Creek

• Thanks very much, gentlemen, for all the pains you went to in identifying the picture for us.—Roland B. Miller

American chestnut

Dear Sirs: I am sending you these branches, burrs and nuts of the native American chestnut, as I believe they are very rare. In my numerous trips afield in Rockland County, as a hunter, for the past 30 years, I have found several young chestnut trees but they all seem to die of the blight before they reach the fruiting stage. They all seem to reproduce themselves from the roots. These trees I have discovered are about 10-12 years old and are in various stages of being killed by the blight.

Is there any way of keeping these chestnuts alive by spraying, varnishing or whitewashing? I mention the last two as the blight seems to mainly strike the trunk.

It seems a shame that we cannot do anything to revive this wonderful tree. In days gone by, this nut was considered as part of the local food supply for humans, squirrels, deer and possibly wild turkeys.

My Uncle, Anthony S. Milewski, former Mayor of Spring Valley, can recall when in the space of an hour, he could fill a flour bag. All I can remember is a forest full of dead chestnuts, standing like skeletons among the live trees.

As for the wood, it was one of our most beautiful for furniture and trim. Its enduring powers are remarkable. They are still replacing chestnut power poles down here in Rockland County.

Marcel A. Jasinski, Spring Valley

• Each year at this time numerous reports are received from various sections of the State, reporting the "discovery" of fruit-bearing sprouts of the blighted American chestnut.

I agree with you that the finding of chestnut burrs stirs the imagination and causes one to speculate—will this particular tree become the forerunner of a blight-free strain that in due time will replenish our forests with this fabulous tree? However, all indications to date are that such a tree does not yet exist. The tree you have collected fruit from will no doubt, become infected and will follow its predecessors. Just how soon this will happen is of course, uncertain. Prevention of bark injury will prolong the inevitable day.

The forest geneticists have not yet given up their attempt to develop a blight-resistant strain. At Laurel, Maryland, the Northeastern Forest Experiment Station Hardwood Research Center under the direction of Jesse A. Diller, Pathologist, is conducting extensive tests to develop such a tree. Should you know of the existence of a large old *native chestnut tree, over 10" in diameter, contact this organization. They are collecting grafting stock (scion wood) from such trees for propagation and close observation of any blight resistance. As of now not one American chestnut has been found that has sufficient natural resistance to the blight to warrant its propagation.*

Thank you for offering to send us additional fruits. Our nurseries are currently only growing coniferous planting stock for reforestation purposes and do not have facilities for research in this field. (See also N. Y. STATE CONSERVATIONIST, *Apr.-May, '50 "New Chestnuts for Old," by Thomas Page).—E. H. Huber, Supervising Forester*

Deer questions and answers

Dear Editor: The following quotations are from an article by C. W. Severinghaus, Game Research Investigator, in the August-September issue of THE CONSERVATIONIST.

"In the Adirondacks about two deer every square mile died of starvation. In the western Catskills and east central New York starvation losses on 57 acres surveyed in this section of the State averaged 16.36 deer dead per square mile. . . . In all, eight western Catskill and east central counties were spot-checked and a total of 449 starved deer were located."

This all happened in the Winter of 1955-56 and these are but a few quotations from Mr. Severinghaus' article. This information should arouse the feelings of every hunter, every hunting club, and every guest house where hunters are accommodated and create a strong desire in them to render assistance.

I suggest that the Conservation Department publish in this magazine some advice on feeding deer that may prevent, at least some of this starvation. This advice will, in my opinion, bring favorable response from all concerned and may lead to improving this terrible condition.

If a voluntary response is not received, then laws should be enacted to provide means of helping the starving deer during the Winter months. Will the reading public of this magazine kindly give their opinion:

(1) Should a hunting club be obligated to some extent for food supply for deer on club grounds? (2) Should a guest house accommodating hunters be obligated to some extent for food supply for deer on property posted and used by them? (3) Should all hunters pay an extra fee for their license, such extra fee to be used solely to help starving deer?

Kindly show your willingness to help by answering these questions and by making suggestions. I believe that many hunters would be happy to appear at their favorite hunting spot for at least one day and comply with suggestions set forth by the Conservation Department.

Why not plan a few "Starvation Aid" week-ends each Winter?

Martin J. O'Connor, Franklin Square

• Winter feeding of deer is not the answer to the problem of deer starvation. The reasons are as follows:

1. The total land area where deer are too numerous for their available Winter food supply is too large. Therefore, the difficulties involved in getting artificial food to these deer are too great both physically and economically.

2. Deer do not quickly change their ability to digest artificial foods. As a consequence, in New York and many other states where artificial feeding has been attempted, deer have ingested but not digested the artificial food made available to them.

3. If artificial feeding did save a few deer from starvation, those deer saved would further increase the deer population that is already too large for its natural Winter food supply. Some of the deer saved would be females and the fawn crop they produced would further increase the deer population. Artificial feeding, therefore, if it did save some deer from starvation, would increase the number of deer and increase the amount of feed needed.

4. Experiments have shown that to save deer from starvation in areas where starvation is expected it is necessary to feed 4 to 6 pounds of deer food per day per deer for 90 to 120 days each Winter. Also, it has been demonstrated repeatedly that artificial feeding draws deer. As a consequence, where 50 deer start using a feeding station early in the Winter the number being fed by late Winter has been doubled in many instances.

There are other reasons why artificial feeding is not an answer to this problem of starvation. I believe you will understand the difficulties from the above examples.

What then is the answer? To begin, I should point out that buck hunting will not prevent the growth of a deer population except in areas where the illegal kill of fawns and does is great enough to reduce the fawn crop. Therefore, in areas where there are too many deer for the available supply of Winter food, antlerless deer seasons are the only solution to the problem of malnutrition without death from starvation or severe malnutrition resulting in death from starvation.

Through research in New York, methods of determining where and when there are too many deer for the available Winter food supply have been developed. We now have three such methods. These are: (1) The size of the antlers grown by deer of determined age; (2) the number of eggs or embryos produced by female deer; and (3) the weight of deer by age.

The range of the variations in New York State for these three criteria from the poorest to the best quality and quantity of existing Winter range is as follows:

We have adequate data on a township basis for the antler size criteria to prove where there are too many deer. We have adequate data on a county basis for the embryo and weight criteria to show if and where there are too many deer.

What we now need in New York State

is public understanding of the nature and magnitude of the deer problem, and realization that it can only be corrected by legislation backed by the public. This legislation must be broad enough in its scope to permit the legal hunting of antlerless deer wherever in the State and whenever there are too many deer for their own health and vigor and where deer damage to agricultural crops and young forest trees is too severe.—C. W. Severinghaus, Leader, Big Game Management Project

Beagle trials

Dear Editor: I read your article on "Field Trials" in August-September CONSERVATIONIST. I think your Game Management Areas are quite a thing, but it seems to me that the bird dogs have quite a preference over the beagles.

What about an area for the beaglemen that run their dogs on hare? I think an area in the West Leyden or Boonville section would be just the thing for the 200 or more sportsmen that have hare hounds and live in Rome, Utica, Boonville, Poland, West Leyden and surrounding towns and are very much interested in hare trials.

Your consideration on this matter for a Game Management Area for hare would be greatly appreciated and I would appreciate hearing from you at your convenience.

Stella Oldfield, Rome

• *Thanks for your comments on the field trial article that appeared in the August-September issue of* THE CONSERVATIONIST.

You are quite correct in charging us with having overlooked the beagles in our discussion of these areas but it was truly an oversight as many of them—particularly the Three Rivers Area at Baldwinsville—are regularly used by beaglers for field trial purposes. The beagle clubs schedule their trials there in the same manner as the upland game bird dog clubs.

We are sure that with the steadily increasing interest in dog trials in general, and I think this goes particularly for beagle trials, there will be further use and development of State-owned land for this purpose.—Editor

The "copy-cat" bird

Dear Sir: I enjoyed Clayt Seagears' bedtime story in the August-September number very much. It was almost as good as the story he wrote about wasps last year!

But, in "Birds of America," George Gladden says that the nest of the crested flycatcher is *always* encircled with a discarded snake skin, and furthermore he says, ". . . no other bird does the same thing, or anything like it." So, what about Mr. Seagears' catbird? How can she explain her odd behavior? Maybe she is a copy-cat bird!

Mrs. Margaret Hunt, Hillsdale

• *Not odd at all, says Clayt. The catbirds' habit of filching snake skins was first called to his attention by his Mother, says Clayt, who—noticing that every catbird nest around their home was snake-skin lined—asked him if they always did that.—Editor*

Bear paw

Gentlemen: I enclose a photograph of the hind foot of a bear cub which I found yesterday on a trail while on my way to fish on the Shingle Shanty stream. It could have been there only a few hours as it was only slightly fly-blown and was fresh. There was no sign of blood anywhere although bear signs were evident in a nearby berry patch. There was no trap and I know of no one trapping coyotes or bobcats hereabouts. The bones and ligaments look as if they had been crushed by powerful jaws and teeth. To me it is a complete mystery which perhaps you can solve for me.

The questions which come to mind are: (1) Do male bear every kill cubs? (2) Is there any other animal that might kill a cub in spite of the mother bear? (3) Could a cub meet with some natural accident which might crush its leg and thereafter chew its own leg off? (4) Would the mother bear do it for him? (5) Could this be panther work?

The leg shows no signs of putrefaction or gangrene.

Bears are very plentiful here this year. I have seen 12 this Summer in my ordinary travels around the Brandreth tract.

Eugene W. Potter, Brandreth

• *Thank you very much for your interesting letter and snapshots of the bear fore-foot which you found in your travels around the Brandreth Tract.*

I'll answer your questions as best I can but I don't think I can solve the question as to who and what chewed the leg off the cub. Question 1—Do male bear ever kill cubs? Yes they do—mostly during the mating season when cubs are still traveling with receptive females. Generally females will not breed while her cubs are still with her and males try to drive off the cubs to fend for themselves or may kill them if the cubs persist in returning. I would say, though, cubs are rarely killed in the process.

Judging by the size of the leg, your cub probably was in its second year and it could possibly have lost its leg in a one-sided fight to a male, driving off the cub. BUT, as we understand the breeding season, black bear generally breed during late June and early July. Your bear paw was found August 22, a good month after what we assume is the mating season. However, since we do not know exactly when the season begins and when it ends, it could be possible for a female to be receptive at this time.

Question 2—Is there any other animal that might kill a cub in spite of the mother bear? In Summer, no. In Winter, a pack of coyotes might but this is highly doubtful.

Question 3—Could a cub meet with some natural accident which might crush its leg and thereafter chew its own leg off? Your guess is as good as mine. Anything can happen in the wild. I have seen several photos of 3-legged bears.

Question 4—Would the mother do it for him? Very doubtful. A mother may stick by a cub in a trap but makes very little effort to free it, merely sympathizing with it. The younger the cub, the longer the mother sticks around but if the cub can't free itself in a day or so, the mother leaves it.

Question 5—Could this be panther work? Definitely not. No one as yet has proved that we have panther in New York.—Nick Drahos, Senior Cons. Educator

Porcupine damage

Dear Sir: We own a camp at Seager, in Ulster County, and in recent years have been seriously bothered by porcupines. We have managed to seal off the vulnerable spots around the house, but what has us all worried now is their continual attack upon the beams of an old covered bridge that serves several camps.

In the interests of conserving one of the remaining few of these old landmarks, we are willing to spend some time and effort in reducing the damage being done to the bridge. To your knowledge, is there any solution with which the beams can be painted that will repel porcupines or do you know of any method (other than shooting, which is only partially effective) through which the animals can be kept away from the bridge?

Congratulations on the continued good work in publishing THE CONSERVATIONIST. I personally think it is one of the finest little magazines in existence and wouldn't be without it.

V. B. Garrison, Caldwell, N. J.

• *I have sounded out the game research boys in the Department and find that it is a matter on which very little information is available. We do, though, have a couple of suggestions which we think may be worthwhile trying as a treatment for the beams of the old covered bridge now being attacked by the porcupines. In both instances the control would involve painting a solution on the beams in the hope that it would act as a deterrent.*

One such suggestion is a solution of Pentachlorophenol. The other is a solution of formaldehyde. In the latter reference I heard some time ago that one of the best ways of discouraging porcupines from chewing on the guy ropes of tents when used in forested country where porcupines are common, is the soaking of such guy ropes in a 10 per cent solution of formaldehyde. Perhaps the same general idea might be applied to painting the beams although I expect that whatever solution is tried it would be necessary to repeat the operation from time to time as its effects wore off.

In the event you do try one or both of these suggested solutions we would certainly appreciate your letting us know what degree of success—if any—is achieved.—Editor

Christmas trees

Dear Editor: Tonight I sold my first truck-load of Christmas trees. A very commonplace event, you say—a willing buyer and a willing seller, a contract, a sale completed. But there was more to it than that.

I am a lawyer, with conservation as a hobby. Selling a few Christmas trees is a natural by-product of the main purpose. One plantation, started six years ago, had developed a few Scotch pine large and shapely enough to grace any home at Yuletide. Tonight, by the light of a new moon in a cold but beautiful Winter sky, the first truck-load moved off the hill.

To the buyer, his three loaders, and even the truck, there was nothing unique about this transaction. In fact, the tired truck and workmen groaned and panted in the frosty air under this the final loading of a long hard day. They wanted me there to help with the count. Tired of shivering inactivity, I began pushing the bushy young trees along to the loader. And suddenly these splendid green conifers were more than just numbers. For six long years I had helped them develop from seedling to six foot masses of tender branches and dark green needles as round and fuller than a tumble weed. In two short weeks in June my whole family had wielded pruning shears to improve their shape and make them full and compact. In their earlier years, when heavy frosts had heaved some of them out of the light soil, I had replanted scores of them with a hoe. Even in the Winter darkness I actually recognized many familiar shapes.

Later that evening, the inevitable comforting conclusion occurred to us—these were indeed foster children, emissaries of cheer from our house to countless others.

Frank W. Williams, Cuba

• *Christmas comes in many forms. We particularly like this one.—Editor*

Deer and posted lands

Gentlemen: I have been reading with great interest the plight of deer in our State and country. Most of the leading hunting and fishing magazines, as well as our own N. Y. S. CONSERVATIONIST have carried articles on the necessity of killing more deer or being faced with wholesale starvation of our deer herds. Now, I am an avid deer hunter and love the outdoors and this would be the last thing I would like to see happen.

More liberal hunting seasons seem to be just a partial solution, in my estimation. For what good does it do to clean out deer in relatively small areas, when there are so many posted areas where the real starvation problem really exists? I'm from Utica and hunt in the Central Adirondacks and I defy anyone to drive from Utica to Old Forge and find a foot of unposted land—all in perfect deer country. All this land serves as a sanctuary for deer when hundreds of hunters converge on the small unposted areas since they just chase the deer onto them.

I notice every Winter that the Adirondack League Club has pictures of deer that need food yet they allow very little hunting to keep the herd in balance. In fact, deer can be seen around their land all the time and they seem to know they are safe and even defy you to shoot them by not being afraid.

It seems something could be done about persuading landowners to allow hunting when there is an over-population of deer. Certainly landowners can't shoot all the deer needed to keep the herd in balance.

And, lastly, if the deer problem is as acute as many seem to think, why then is there such a stiff penalty for shooting a doe or deer out of season? Pheasants and other small game are scarce but to take one illegally involves little risk of a stiff punishment. It seems that deer certainly are overprotected when people are given the impression that it is such a crime to get some camp meat. I'm not trying to say that it should be okay to shoot deer illegally as that certainly would be a poor solution. I'm just trying to bring out the fact that laws and actual conditions seem to conflict.

I may be all wet on my views but at least I'd like to get them off my chest and hope that some of these greedy landowners who post mainly to keep the hunting for themselves get to see the light.

Alladin Gremza, Utica

• *You have raised a number of very pertinent points relative to the management of the deer herd in New York, difficulties involved with the posting of lands, the philosophy of the Department insofar as prosecuting violators of the Conservation Law is concerned, and the establishment of deer seasons.*

Concerning these points—there can be no question, I believe, that not enough deer are harvested in many sections of the State in most years. Nor is there any question that irrespective of what season is declared, it's often impossible to adequately harvest the deer crop because of extensive areas of range posted against general hunting; i.e., restricted to the relatively few club members who may own or lease land for this purpose but, who themselves, cannot begin to shoot the number of deer necessary to keep the herd in balance with their food supply. I believe we are making definite progress with respect to the establishment of a more intelligent season, including periodical open seasons on antlerless deer where the need to harvest a greater proportion of the herd is apparent.

We are making somewhat slower progress, it must be admitted, in getting the idea across to private and semi-private sportsmen's groups that it is to their own interests that more deer should be harvested on their hunting lands than their own memberships can account for. Some groups have already taken steps to make their hunting lands available to outsiders and many are edging in that direction.

Of considerable hope here is a program now under study by the Department to provide a means by which Game Managers would be able to work directly with private landowners in game habitat development. This program, in the field of game management, would be comparable to that provided Foresters under the present and very successful Forest Practice Act.

As for the law, and law enforcement, we still think that we are on the right track in placing a severe penalty on the illegal killing of deer. It should be and is possible, (I think you will agree), to so adjust the seasons and ultimately to educate and cooperate with the property-owners and sportsmen in general to adequately harvest our deer crop in a legal manner; not by some manner of subterfuge, to depend on an illegal harvest to do the job for us, and to deny in the process, the conscientious sportsman from his fair share or opportunity to legally harvest the deer.—Editor

Coyote pup

Dear Sir: This coyote pup was killed on the road from Tupper Lake to Blue Mountain between Long Lake and Blue Mountain. He ran across the road and swerved to hit the guard rail, bounded into the car and was knocked out. He was still kicking when the men reached him so they killed him. The men were employed at the Adirondack Museum at Blue Mountain Lake and are saving the hide for the Guide Room of their institution.

Frederick A. Hodges, Utica

Rice for ducks

Dear Sir: In your last June-July issue of THE CONSERVATIONIST, in an article concerning the Montezuma Marsh, different forms of aquatic vegetation and various kinds of grain were mentioned that we've grown and used for the feeding of migratory waterfowl. In this article I saw no mention of rice. Isn't wild rice considered a good food for waterfowl?

I intended to buy some of this seed, but am beginning to wonder whether it is worth the time and effort. Will it thrive in this section, and will it perpetrate itself as it has in Wisconsin?

S. Yager, Ellenville

• *Wild rice is a very good food and cover plant for most dabbling ducks, and is generally much used by them wherever it is available. However, from our experience with many plantings throughout the State, it will thrive only on the more fertile lowland soils and under conditions that are somewhat critical. Also, it generally ripens its grains during September before the real waterfowl migration has built up, and most of it is harvested by blackbirds. That is why we do not generally recommend its planting by game clubs and individuals. For the purposes they have in mind at Montezuma, there are many other better waterfowl foods to cultivate than wild rice. Some of them were mentioned in* THE CONSERVATIONIST *article you refer to: Japanese millet is one, and large-seeded smartweed is another.*

It is possible in your section around Ellenville that you might have some success with wild rice on the better soils along the Rondout, provided other conditions such as water levels and competition from other marsh plants was not too great, but I would not expect any real growth in any upland pond in that vicinity. The soils are too thin and lacking in lime and the water generally too brown and acid.

The best waterfowl-producing sections of the State, both actual and potential, are also those with the better agricultural soils. And this holds true for many other species of game. Where the land will support it, other conditions being equal, game will be. —Donald D. Foley, Waterfowl Biologist

Protection

Dear Sirs: We have 2,000 Austrian pine trees coming along fine. To protect them from hunters and people who feel they should have one, would you be kind and send us some signs to post around our grounds and club house. We own about 10 acres of land.

Carmine Acquilano, Secretary,
Forge Rod and Gun Club, Inc.,
Geneva

• *Signs bearing this notation go with tree orders from this Department: "Forest Plantation. Established here with small trees from New York State Nurseries. Help Protect It. Conservation Department." Such signs were sent the Forge Club. We hope they work.—Editor*

Water chestnut

Dear Sir: Noticed on page 38—last issue—your story on control of water chestnut. We have lived for many years on a rocky point out in the Hudson River with a "cove" or bay on each side of us. This is at lowest tide above a foot deep—4-5 feet at high tide (channel front of us). Several years ago Army Engineers of Albany surveyed here and found no chestnuts and asked me to report of any nearby. Next year I saw a few and reported same (no action); next year many more and they wrote there were no funds to control same. My husband went out and pulled all that Summer (and every Summer since) but they are thick in one "cove"—and spreading every year. I wrote the Army Engineers two or three years ago and asked for advice, or any means we could use to control this—offered to spend some money here ourselves. No reply.

Can you offer any advice as to hand spraying: where to buy spray material, etc., at what month is best time, etc.?

My husband is an employee of U. S. Coast Guard on the river all the time. I can see where this will all end up, unless something is done. Why no funds for control from State or Federal aid?

Mrs. Chester B. Glunt,
Rocky Point, Saugerties

• *If you wish to control water chestnut locally the best method known is to spray with 2,4-D soon after the plants reach the surface and again before any remaining plants form seeds (usually second spray early in July). Even this will not give complete control but will usually greatly reduce the number of plants coming up the following year. When reduced to a few plants, hand pulling is usually necessary for several years in order to achieve complete eradication. An added difficulty, along the Hudson is that floating plants in late Summer may bring in additional seeds. The seeds or nuts ripen as early as July and control is not effective if done late in the season, when some ripe seeds would have dropped. Hand pulling of young plants is much easier than after the plants are large and have branched out.*

The cutting operations are less effective than spray because the cut plants tend to drift to new locations and will ripen some seeds even when cut.

We are operating a project on water chestnut eradication, financed by Federal Aid in Fish Restoration (Dingell-Johnson fund). In recognition of the damage that further spread of water chestnut would do to many lakes priority is being given to eradication in areas of new infestation. These include areas as far north as Lake Champlain and as far west as Keuka Lake. During the past two years several new infestations have been eradicated and others much reduced.

Unfortunately there are no immediate prospects for handling the heavy infestations in Lower Mohawk and Hudson which amount to thousands of acres. It is to be hoped that ultimately this undesirable plant can be completely eradicated. There is no getting around the fact that it would take many years and much money to do this.

In our present project, considerable emphasis is being placed on development of more economical methods. The usual procedure has been to use 2,4-D in fuel oil for the spray, but preliminary results this Summer indicate that several times the economy of cost can be obtained by use of a water emulsion of kerosene and 2,4-D with a wetting agent (detergent or spreader sticker).

The following spray formula seems to give good results: 20 gallons water, 5 gallons kerosene, 4 ounces spreader-sticker, 1 gallon 2,4-D (40 per cent liquid amine salt), sprayed at 150 or 200 pounds pressure. No permit is required by individuals wishing to spray water chestnut, but it is desirable to bear in mind the possible damage to adjacent vegetation, gardens, etc. and 2,4-D should not be used where it will drift by wind action to areas where damage could result. Spray materials are generally available through suppliers of farm and garden equipment.

Enclosed is a reprint from the Fish and Game Journal *on water chestnut by Ralph H. Smith which gives considerable background information on water chestnut in New York.—John R. Greeley, Chief aquatic biologist*

Trees from seeds

Gentlemen: I am very interested in raising evergreen trees and shrubs from seeds. Could you supply me with the information I need to do so? If not, do you know where I can obtain such information?

Joe Van De Wal, Castleton

• *We are enclosing a circular prepared by the Superintendent of the Conservation Department tree nurseries which describes in detail the growing of forest trees from seed. It doesn't specifically mention shrub raising but generally the instructions given for raising hardwood seedlings can be applied to shrubs.*

Although coniferous tree seedlings are available at low cost from the Conservation Department for reforestation purposes we like to encourage individuals to raise their own whenever practical. However, growing forest tree planting stock from seed on a small scale is costly if one considers the labor involved and there are many chances of failure.—LeRoy G. Irving, Conservation Educator

Snake bite remedy

Gentlemen: Three years ago I read an article in one of the leading hunting and fishing magazines describing a new method of treating snake bite. The article seems to be logical enough but since that time I have neither been able to locate any other data to back it up nor have I found anyone who has. Perhaps you have someone connected with the Conservation Department who can give some reasons for or against it. If it is a good method I should think that some of your readers would appreciate the knowledge as a precaution against snake bite. I enclose the article for you to read.

Fred Bond, Jr., Glen Cove

• *The article referred to here appeared in the* Field and Stream *magazine for November, 1953. An excerpted and condensed version follows:*

The L-C (ligature or tourniquet and cryotherapy or the science of employing heat or cold as medical treatment) method of treating the bites of venomous snakes was one developed at Arizona State College. Basically it is the application of cold to the bitten area, either with ice or a spray of ethyl chloride, with a ligature above the wound for the first five or six minutes after the bite and during the initial chilling.

The poisoned area should be kept chilled (not frozen or frosted) for at least six or seven hours or even longer in the case of bites by large poisonous snakes. The cold reduces the chemical activity of the venom and allows the body to absorb it slowly and have time to compensate for it. Also the pain that often results from such a bite is reduced with the chilling.

This treatment is not meant to substitute for proper medical attention but should help supplement it and make the victim more comfortable until treated. Most campsites have ice on hand and a small can of ethyl chloride is relatively inexpensive and easy to carry. Caution should be used in the application of the ethyl chloride since it is easy to actually freeze the area.

• *Thank you for calling our attention to the article on the L-C method of snake bite treatment.*

While the incidence of venomous snakes in New York is not great, there are some local areas in which they are fairly common. For people in these sections, either residents or visitors, knowledge of such a method might be very useful.

A check with the State Health Department disclosed that the article was based on research done at Arizona State College and appeared in the American Journal of Tropical Medicine and Hygiene, *vol. 2, 1953. They do not know of anyone locally who has tried the method, but after looking over the article seemed to feel that it would work as described.—Wayne Trimm*

Add big tree

Dear Sir: Just got the last issue of THE CONSERVATIONIST and hasten to add my bit to the "Big Tree" situation!

The so-called sequoias along Northern Blvd. in Flushing as reported by "City Slicker" are *Taxodium distichum!**

George Peters

• * *The scientific name for the bald cypress, which is closely related botanically to the sequoias, though in its range, it is limited to the Southern States where it produces the cypress timber for commerce. The tree seems to be fairly hardy here in the North, and there are several specimens growing in the parks here in Albany.—E. W. Littlefield, Asst. Director, Lands and Forests*

Another bear trap

Dear Sir: Enclosed is a snapshot of another bear trap, being a double-springed, handmade one. It is being held by my three-year-old son, "Buddy" Vandenburg, who is 41 inches tall. I thought you might like to add it to your collection of those published in THE CONSERVATIONIST.

The measurements of the trap are as follows: Length 43″, length of jaw between springs 17½″, height from base 8½″, pan 6½″, weight approximately 40 pounds, eight teeth on the jaws ¾″ long. The trap is owned by my father, Arthur Vandenburg, Broadalbin.

Robert Vandenburg, Northville

• *Either the traps are getting bigger or the kids smaller.—Editor*

The basswood tree—continued

Dear Editor: Here are some additional notes that can be added to Rosemary Clarke's story about the "Basswood Tree." One might call the basswood tree a nut tree. The seed is small but it clings to the branches all Winter. These seeds (or nuts) are rich in food value and have kept more than one woodsman from starving to death. Both Indians and mountain people use a green basswood stick with the bark peeled back from the end to keep rattlesnakes at a distance. The peeled green bark is good for stings and sores.

A. T. Shorey, Albany

50-milers

Dear Sir: It may interest you to know that the Northville-Lake Placid trail, maintained by the Conservation Department, was the setting for the major 1956 event of Explorer Post 8, Schenectady.

Our Post was the first in Schenectady County Council to try for the new 50-Miler Award. This award is given to Explorers who travel 50 continuous miles, in five days or longer, by foot or canoe, without motor assistance.

After careful consideration we chose the Northville-Lake Placid trail, as this would give us the mileage needed, lean-tos for our camping and wilderness lakes which appealed to the Explorers who were to participate.

We chose the 50-mile section between Piseco and Tirrell Pond, and on June 23, seven members of our Post, and a leader, began the week-long trip.

The first day took us from Piseco to Spruce Lake, camping the first night at Spruce Lake lean-to. The second day took us past West Canada Lakes, reaching Cedar Lakes lean-to that night. The next day we made it to the Cedar River Flow, camping under our ponchos near Wakely Dam that night. The fourth day's hiking took us to Stephens Pond lean-to. Here we stayed that night and the next day and night. The sixth day we hiked on to Tirrell Pond, where we camped for two nights, then meeting our transportation on the 30th for the trip home.

Besides each participant receiving his 50-miler award, the trip was an inspiration to all—the daily hiking, cooking out, our camping each night, the true enjoyment of the Adirondack wilderness. Oh yes, the thrill of seeing wildlife—several deer, ducks, loons, porcupines, a raccoon, and the greatest thrill of all—surprising (or being surprised by) four bears.

All of this helped us to appreciate the fine work of the New York Conservation Department in maintaining the trails and the shelters for all to enjoy.

Ben Rolston, Asst. Advisor,
B. S. A., Schenectady

Binders

Dear Sir: I am a subscriber to THE CONSERVATIONIST and wondered if you had made up binders in which one could place several copies of THE CONSERVATIONIST, making them into volumes. I would appreciate your telling me if you have such an item and the price of same.

F. Matthews, New York City

• THE CONSERVATIONIST *does not have binders for sale. Some time ago we got a sample of the book binding work Ronald DeBock of 3185 Dewey Avenue, Rochester, a Boy Scout, does for $2 plus postage. As recent as the February-March, 1956 issue, we had a letter in the Letters section from Bernie E. Hayes, Wellsville, describing how to bind copies of the magazine. Of course, the commercial bookbinders will do the job for you or may have the right size binders for sale. —Editor*

Mink diet

Dear Sir: I am sending you a clipping which appeared recently in our local newspaper where a smallmouth bass had been caught in Minnesota. After being cleaned, it was discovered that the fish had swallowed a mink weighing nearly one pound.

I found this rather amusing but hard to believe. Have you heard of any such incident happening in the past or is this one of those "once in a lifetime happenings?"

Freda Vandenburg, Northville

• We have heard of many things which go to make up a fish's diet but this is a new one on us. We don't discount the possibility that such a thing can and did happen —a lot depends upon the size of the fish. But, by the same token, a mink can be a rather vicious individual when molested or attacked and we can't help but wonder what it was doing during the swallowing process. —LeRoy G. Irving

Splake

Dear Sir: What can you tell us about "splake?" I have read several articles on these new "hybrids" and they all sounded pretty good, but have we tried out this newcomer or are we going to be the last to get in on it?

I think it would be very interesting to your readers if you would print an article on the "splake" so we could all get the "dope" first hand. Let us know what other states are doing and some of the things accomplished so far.

Harry A. Hosley, Hoosick Falls

• In reply to your letter, and other recent inquiries pertaining to splake or Wendigo trout in New York waters, these are the highlights of the situation—to date:

(1) What Adirondack lakes have been stocked? We have stocked two reclaimed waters; one a brook trout type habitat (Panther Pond); one a lake trout type habitat (Connery Pond). We also plan to stock another reclaimed pond in the Spring of 1957 (Green Pond) which is a lake trout type water. We have stocked some "problem" Adirondack ponds with them (waters in which the non-native yellow perch has been introduced). Little Green Pond, Church Pond and Polliwog Pond.

(2) Are they open to fishing? All waters where splake are stocked are open to public fishing.

(3) What size do the splake now run? Fall fingerling splake stocked in 1955 in Connery Pond run 7-10 inches a year later. Splake were initially stocked in Panther Pond in the Fall of 1954 as fingerlings. In 1956, this planting runs about 12 inches. Interesting point in reclaimed waters is: Will splake do best in such water or will they do best in waters with forage fish (minnows, suckers and other native species)? I believe they will show better growth in deeper lake trout ponds, than shallower brook trout ponds, but this remains to be seen.

(4) Do we plan further stocking in additional waters? We will probably add a few more waters in order to acquire knowledge as to just what can be expected from this hybrid.

(5) Is there a splake rearing program in State hatcheries? We have what might be called an experimental program at our Saranac Inn Fish Hatchery. All crosses have been with lake trout female and brook trout males. In the hatchery, Fall fingerling splakes average 4-5 inches in September and October and splake yearlings average 6-7 inches in May.

(6) Anglers have caught splake to identify them as such in only two Adirondack waters, Panther and Connery. They have enjoyed fishing for them. Most anglers state that they are excellent eating, not quite as red meated as brook trout and perhaps not as scrappy as brook trout (this only concerns splake up to 12 inches in length).—Robert G. Zilliox, District Fisheries Manager, Adirondack Fisheries District

Conservation Cabin

Dear Editor: I am enclosing a picture of my conservation cabin on Mt. Utsayantha in Stamford. As far as I know it is the only cabin wired for electricity. The Civil Defense has a relay station here on the mountain and that gave us a chance to have electric lights. What a wonderful place for television. I am going to bring my set up and hope to get ten stations.

Mt. Utsayantha is a very popular spot in the Summer. Many people come up here for picnics. The elevation is 3,212 feet.

James E. Davies, Observer
Mt. Utsayantha

Ants in his cabin

Gentlemen: I have a log cabin in Lewis County on Copper Lake. The cabin is about 20 years old, having been built of peeled spruce logs, the ends of which—in some instances—have become rotted.

About a year ago, I removed an end which was unusually rotted to find a nest of a type of large black ant, which looked like the household variety excepting that they were a little larger. We are now finding these ants in the interior of the building and evidence where they are chewing down inside of the logs.

My problem is how to exterminate these ants since they are not on the exterior of the logs but down in the center. I fear that if they are allowed to remain for a much longer period in place of a log cabin I will find a large pile of saw dust.

I would appreciate any suggestions that you have as I intend to visit the cabin soon for a hunting trip and could then take whatever materials necessary to start an extermination program.

Robert A. Hennie, Cleveland, Ohio

• There seems no doubt from the description you have given in your letter of October 26, that the pests presently reducing your log cabin on Copper Lake in Lewis County to a pile of sawdust, are carpenter ants.

Fortunately, there seems to be some very effective control methods that have been developed to combat these pests and we are pleased to send along to you leaflets—one prepared by the College of Forestry and the other by the Society of American Foresters—detailing these control methods.—Editor

Pondweed control

Dear Editor: We have a small pond on our property 65' x 30'—average depth 6 feet. We have stocked it with bass and bluegills and they are thriving. We would like to know how we can kill the profusion of weeds that grow in the pond and on its banks.

Mrs. Pat S. Lester, Wellsville

• In general, for small ponds our recommendation for control of rooted aquatic vegetation is that it be done manually; that is, by cutting, dragging or preferably, by hand pulling. It is true that such methods are arduous but actually they are the only practical methods which may safely be carried out in waters where fish are present. Especially in a pond as small as yours, I would think that some combination of these manual methods would be quite practical.

It is true that various chemicals may be used effectively to kill aquatic vegetation. In all cases, however, there are certain objections to such chemical methods; either the fish will be killed by effective concentrations, its danger to the applicant of the chemical as well as to warm-blooded animals generally, or some other difficulty.

Sodium arsenite used at levels less than 10 parts per million will usually control submerged aquatic weeds without harm to the fish. However, this chemical is toxic and caustic and should be used only by trained personnel with suitable equipment. We therefore do not recommend use of this or any other chemical for this purpose.—C. W. Greene, Chief, Bureau of Fish

Credits

First and second covers, pages 2, 3, 17, 24, 25, 36, H. Wayne Trimm; 4, Adirondack Museum; 5, 6, 7, 31, 39, Roy Irving; 8, 9, Earl McGuirk, Fred Chambers; 10, 11, Ranger School, Wanakena; 12, 13, Oliver H. Hewitt, A. F. Sozio; 14, Dave Allen; 15, Nick Drahos; 18, 19, John A. Nystrom, Art Siegfried; 21, 22, C. E. Bowden, Horticulture, Massachusetts Horticultural Society; 28, 29, Dick Ryan; 32, Stephen Pradon; 33, McGuirk, Chambers; 34, Irving, Stacey Robeson; 35, Rutgers University; 37, New York World-Telegram, McGuirk; 38, McGuirk; third cover, Clayt Seagears; fourth cover, Life Magazine.

The Trapper and the Ornament

IT so hapened that a North Country village had its dump on the edge of the Big Woods. And it also happened that it lay in the daily outward-bound path of a mink trapper. The forlorn skeletons of several used Christmas trees lay on this dump and one day the trapper noticed that one of them cradled an expensive ornament that someone had overlooked.

It was about nine inches long, red and shaped like a very large apple with a small ice cream cone attached to the bottom by the ice cream. Strawberry probably.

He picked it off the tree, hung it on his pack basket and went on into the woods, reading the changing stories on the unrolling pages of the snow.

Late yesterday he had heard Fred Gunther's fine brace of Walker hounds trailing a fox on the mountain far on the other side of the village. But he did not know, until he saw the tracks, that the fox later had brought the dogs clear over here. And then he saw the tire marks of Fred's jeep on an old logging trail and he knew that he had been out here during the night trying to pick up his hounds. Then he came to where Fred had turned around to go home and there spread out in the snow lay Fred's coat. And on it now lay two tired hounds. He smiled and spoke to the dogs. They thumped their tails and put their heads down again. They knew their boss would be back to that coat soon to see if they had found it. The trapper knew it, too. Maybe he could get a ride back. He hurried along.

In a half-mile he crossed the first bobcat track he had seen that Winter. He knew that, sooner or later, it would be back again. So he prepared to catch it.

From his pack he produced a fox trap attached by a short chain to a hickory stake. From a small case holding a dozen 2-ounce bottles corked with medicine droppers he selected one labelled oil of catnip and another combining Tonquin musk and beaver castor. He also fished out a shiny tin can lid from which dangled a foot-long string. Then he set the trap and, carrying it, walked on, looking for a spot to place it.

In a moment he stopped near an old log and there he carefully concealed the trap after first driving the stake out of sight in the soil beneath it. Next he squirted a dash of catnip oil on either side and annointed the log with a few drops of musk. Then he adjusted a stick so that its end hung four feet over the trap. And there he tied the can lid so that it dangled and twisted in the breeze.

The proverb—curiosity killed the cat—is not without foundation.

If the animal passed down wind, it would whiff the musk. If it spied the glittering tin it almost surely would investigate. The catnip was the clincher. Irresistible.

The trapper surveyed the evidence of his calculated skill, then turned to shoulder his pack. But he hesitated. Finally he unhooked the dangling tin, replaced it with the Christmas tree ornament and hurried on.

All morning his thoughts kept turning to the ornament. He got to musing that maybe it was a kind of sacrilege to use even a Christmas bauble for such planned deceit.

Once he almost went back.

Fred came in and found his hounds, rested and ready for another run later in the day. The trapper heard the motor and took a short-cut to ride back with him. So he didn't go near the ornament. But the strange deceit of the thing grew stronger in his mind.

In a snug, leafy nest a foot under ground a woodland jumping mouse, curled in a tight ball, was deep in the strange living death of complete hibernation. His breathing was very slow and his listless heart beat only a few sluggish times a minute. His body temperature was only a little above 40°.

In true hibernation the body temperature rather closely follows that of the surrounding air. If a mammal should remain hibernating while the air temperature dropped well below the freezing point, the blood undoubtedly would freeze and the flickering light of life would go out.

So Nature apparently has set up some kind of chemical alarm clock. When body temperatures drop too low, the mammal seems to be aroused enough to do something about finding a warmer house. This sort of thing probably doesn't often happen because the air-conditioned holes and caves used by hibernators normally never get too cold.

But something abnormal happened to the warm vault of this jumping mouse. A frigid draft entered through the roof—caused by the chance penetration of the trapper's hickory stake.

The mouse's heart began to beat stronger and stronger for the danger signal worked. Finally he squeezed through a tiny hole into a deep, safe pocket under a rock.

Meantime, a big male New York weasel hunting through the snow, now softly falling again, had glimpsed the glistening ornament. Possessed of almost cat-like curiosity, he changed his course, came up by the log, poked his snaky head under it, smelled the mouse nest and worked his way along the old chipmunk burrow which led to it. But when he got there, the awakened hibernator already had crawled to safety.

Down-wind of the trap, a red fox also changed his course at this precise moment. The Tonquin-castor scent hung heavily and the fox travelled 100 yards before he saw the ornament. Warily he drew abreast just as the weasel, frustrated, popped out of the hole. The fox made believe he saw neither the weasel nor the ornament and he went on by. Then he doubled back and crouched under a thicket until the weasel, off guard, began hunting again. Foxes eat weasels.

Then the sound reached him—the how! how! how! of Gunther's hounds driving on his back track. The fox forgot the weasel and took off.

The snow kept falling. And it built up on the ornament. And finally the little pin which held the glass neck pulled out and the ball plummeted down straight to the pan of the trap and sprung it. Shattered red bits of glass glistened for yards around.

And then of course the bobcat came and rolled joyously and unharmed in the catnip.

At dawn the trapper put a new Christmas tree ornament in his pack, walked fast to the dump and substituted it for the one he had taken. It was not as pretty as the other, he thought, but it would do.

Then he hurried along into the woods—for he was sure the trap was sprung and he wanted to get the thing he had to do over with, fast.

From a distance he saw that the ornament was gone and the snow trampled. Reproach swept through him. Then he saw the trap—empty.

He just stood. He saw the tracks of the weasel—and the fox—and the bobcat—and the two hounds—all skirting the trap. Yet is was sprung and something had scattered the ornament. It was a story he could not read. The calculated skill to do all this was infinitely greater than his own.

—CLAYT SEAGEARS

"The fox made believe he saw neither the weasel nor the Christmas tree ornament."

Collection of Harry T. Peters

Courtesy of Life Magazine

AMERICAN WINTER SCENES

EVENING